COMPARATIVE VALUE OF BUFFALO BEANS (*Mucuna sp.*) AS A GREEN MANURE CROP ON MAIZE GROWTH AND YIELD

by

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DECLARATION

I, FRIDAY SIKOMBE, do hereby declare that this dissertation represents my own work and that it has not previously been submitted for a degree at this or any other university.

Signature.....Date.....

APPROVAL

This dissertation of **FRIDAY SIKOMBE** is approved as fulfilling part of the requirement for the award of the degree of Master of Science in Agronomy (Crop Science) by the University of Zambia.

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4_____	_____	_____

ABSTRACT

Maize is a major staple food crop widely grown in Zambia. Low soil fertility and high cost of chemical fertilizers are some of the major factors limiting maize productivity. The use and integration of legume green manure species in the cropping system is an important alternative to inorganic fertilizer use. A study was conducted at the field station of the School of Agricultural Sciences, University of Zambia to evaluate the comparative value of buffalo beans as a green manure crop on maize growth and yield. The objectives of the study were: (a) To compare the effect of the selected green manure species, kraal manure and inorganic fertilizer on maize growth and yield; (b) To compare the biomass production of the selected green manure species; (c) To determine the mineralization rate of biomass from the selected green manure species; (d) To determine nitrogen fixation in legume species; and (e) To determine the cost effectiveness of organic and inorganic fertilizers. The first stage involved the growing of three green manure crops, application of kraal manure and then the ploughing under of the biomass at flowering stage. The experiment was arranged in a Randomised Completely Block Design (RCBD).Kraal and green manures were labelled with 10 atom% ^{15}N urea and incorporated in the soil. The second experiment was composed of two factors: maize variety at 3 levels and fertilizer source at 5 levels replicated four times in a Randomised Completely Block Design (RCBD). Maize was grown after the green manure had been ploughed under. Green manure biomass was harvested and later incubated in the laboratory in the ratio of 100 g biomass to 2 kg of soil. The maize grain was milled and analysed for ^{15}N. The results showed that local velvet beans had higher dry matter biomass (12.0 ton/ha) than the improved velvet beans (10.9 ton/ha) and buffalo beans (7.7 ton/ha) by 55.8% than buffalo beans. The three green manure crops increased the concentration in the soil of exchangeable aluminium and acidity, hydrogen, calcium, phosphorus, nitrogen, organic matter, manganese and copper but reduced the magnesium and iron compared to the control. Buffalo beans and improved velvet beans fixed nitrogen by 40% more than the local velvet beans. The mutant derived velvet bean line fixed more nitrogen than its parent the local velvet by 11.3%. The mineralization rate for ammonium for the improved velvet beans and buffalo beans was higher than for local velvet beans but for nitrate and total N was similar for the three green manure crops. The earliest variety in maturity was ZMS 402 (70.5 days)

but local maize and MRI 455 were later by almost 5 days. The grain yield response to the fertilizer sources was higher with ZMS 402 (2.6 ton/ha) than MRI 455 (2.3 ton/ha). The lowest was with local maize (1.8 ton/ha). ZMS 402 was more efficient in the utilization of kraal manure and buffalo beans than MRI 455 and local maize, and so it can be a preferred maize variety to be used in the organic manure cropping system. The fertilizer N in the maize grain varied with the nitrogen source and maize varieties indicating that the quality of the green manure was different with buffalo beans and local velvet beans. Fertilizer nitrogen in the maize grain was similar in ZMS 402 and MRI 455 with inorganic fertilizer and the improved velvet beans. ZMS 402 was however observed to be superior by 64.8% to MRI 455 with buffalo beans. Generally, ZMS 402 applied with local velvet beans gave the highest return and local maize applied with kraal manure was the least among the treatments.

DEDICATION

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CHAPTER ONE

1.0 INTRODUCTION

Maize (*Zea mays*) is the major staple food crop in Zambia. Maize is widely grown in Zambia by the smallholder, medium and commercial farmers. However, over the years it has been observed that the yields have continued declining markedly because of the inadequate supply of nutrients due to declining soil fertility. Low soil fertility is one of the major factors limiting maize production and productivity among the smallholder farmers in Zambia. This situation is common among the smallholder farmers where fertilizer use is low and little or no agricultural residues are returned to the soil for maintaining soil fertility. The use and integration of green manure species in the cropping system becomes an important alternative.

Soil infertility is one of the major problems on crop production and highly affects crop yields and sometimes results into total crop failure. The crop to grow and develop, extracts plant nutrients from the soils and as observed by Mengel and Kirkby (1987). In many soils the rate of removal of plant nutrients by crop uptake, leaching and denitrification is well in excess of nutrient release and weathering mineralization and therefore, a negative balance may result unless nutrients are applied in form of fertilizers or manures to make up the difference. The application of either organic or inorganic fertilizers will sustain, maintain and enhance plant growth and development and thus improve the crop yield.

The most promising route to improving the efficiency of inorganic fertilizers in the cropping systems of the smallholder farmers is by the addition of small amounts of high quality organic matter to tropical soils (Ladd and Amato, 1985; Snapp, 1995). The addition of high quality organic matter to the soil will lead to increased soil microbial

activity and nutrient cycling, with reduced loss from leaching and denitrification (DeRuiter *et al.*, 1993; Doran *et al*., 1987; Granastein *et al*., 1987; and Snapp, 1995). Green manure species are important in the improvement of soils in the tropics. Giller *et al*., (1994) concluded that biological nitrogen fixation from legumes can sustain tropical agriculture at moderate levels of output, often double those currently achieved. Maize grain yields are improved when grown after the incorporation of the green manure crops.

Green manure cover crops have a potential to reverse or slow down soil fertility decline resulting from continuous cropping. Most smallholder farmers are inherently practicing monocropping on a same piece of land for a prolonged number of years. This kind of practice results in a marked decline of soil fertility as the nutrients that are mined from the soil are not replaced.

To improve the soil fertility status among the smallholder farmers in Zambia, vigorous soil management practices need to be implemented. The soil management practices may include minimum tillage, kraal manure use, crop rotation, improved fallow, green manure and others. In Zambia the Soil Conservation and Agro-forestry Extension (SCAFE) programme (FAO/AGL, 2000), promoted the use of green manures, crop residues, farm yard manures, crop rotation and other organic amendments practices among the smallholder farmers with the view to increase yield of maize and also improve the soil structure.

Most rural farmers think that it is only inorganic fertilizers which can be used as an external nutrient supply in maize production. However, there are other several alternatives of fertilizing the crop and record an increased crop yield. Farm yard manure is readily available in most parts of cattle rearing areas of Zambia; however, very few farmers are willing to use it in the fertilization of maize except vegetables in their gardens. Velvet beans and buffalo beans are also available in most places but they are not often used as green manure crops.

There are other types of legumes that grow in their wild state that can be potential

biological nitrogen fixers that have not been tried before. One good example is the buffalo beans, which is a close relative of velvet beans. A study is required to investigate and determine the effectiveness of buffalo beans in terms of biomass production, nutrient contribution to the soil and its effectiveness in fixing nitrogen in comparison with other selected legumes. It is also imperative to investigate its nutrient partitioning in roots, stems and leaves. Currently, there is no information to support its comparative value as a green manure crop to other commonly used green manures such as sunnhemp, velvet beans, cowpeas, soyabeans and others.

Buffalo beans is extensively found growing in most rural districts of Zambia in the wild state and its use as a green manure crop has not been studied before. However, without any scientific backing, farmers noted that a field on which buffalo beans grows, the subsequent crop grown performs well. Literature to support the study on the use of buffalo beans as a green manure crop is lacking and so this study sought to evaluate the comparative value of buffalo beans as a green manure crop.

Utilization of buffalo beans as a green manure crop by farmers can be considered as a breakthrough in the improving of yields of maize in Zambia where the fertilizer costs are exorbitant and thus the cost of production is high. There is urgent need to explore wild legumes and include them in the cropping system.

Kraal manure application to the soil improves the physical, chemical and biological status of the soil. Soil structure after the application of manure is generally improved and consequently the water holding capacity of the soil is readily improved and adequate soil moisture is refined in the soil profile. Crops do respond to kraal manure application and therefore, smallholder farmers should take up the advantage of utilizing the kraal manure in the fertilization of crops.

The objectives of the study were:

1. To compare the effect of the selected green manure species (buffalo beans, local

velvet beans and the improved velvet beans), kraal manure and inorganic fertilizer on maize growth and yield.

2. To compare the biomass production of the selected green manure species.

3. To determine the mineralization rate of the three selected green manure crops (buffalo beans, local velvet beans and the improved velvet beans).

4. To determine nitrogen fixation in legume species.

5. To determine the cost effectiveness of organic and inorganic fertilizers.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1.1 Characterisation of velvet beans and buffalo beans

Hartkamp *et al*., 2002 stated that Velvet bean (*Mucuna pruriens*) is one of the most widely used green manure species in Meso America, West and South Africa. Velvet bean has been described as a vigorous, large-seeded, twinning annual climbing legume with a growth cycle of 120-280 days, depending on cultivar, planting date and environment (Piper and Tracy, 1910; Tracy and Coe, 1918; Verdcourt, 1971, 1979; and Westphal, 1974).

There is only scanty information on the characterization of buffalo beans. It can be described as a vigorous, small seeded annual climbing legume with velvet hairs on the stem and pods. The velvet hairs of buffalo beans irritate the skin and smallholder farmers tend to avoid it and this could be perhaps one of the reasons that it is not extensively used as a green manure crop. The velvet hairs are not a problem before the buffalo bean reaches physiological maturity and this gives an opportunity that it can be used as a green manure crop.

The buffalo beans seed is relatively small and has a tough seed coat. Buffalo beans is very resistant to harsh environmental conditions such as bush fires because the seed is able to survive even intense bush fires and dry conditions. Buffalo beans competes favourably with weeds for nutrients, light and soil moisture and its climbing nature makes it receive good amount of sunlight.

In a study conducted by Malama and Kondowe, 2003 showed that velvet beans

produced high above-ground biomass on both soil types- the acidic Ultisols and the acidic Alfisols. The biomass content reported was 2000 kg/ha. Mwalwanda *et al.*, 2003 reported a biomass production of velvet beans in Northern Malawi of 5380 kg/ha. Bunch and ECHO staff, 1985 reported velvet biomass production of 30 ton/ha (wet weight) and Pretty (1998) reported that velvet could produce 50-100 ton/ha organic matter annually.

2.1.2 Soil improvement

Soil improvement through the use of green manures is also another practice of improving the soil fertility status. Mwale *et al.*, 2003 conducted an experiment on soil improvement through the use of green manures in Central Zambia and found that all fertilizer and green manure treatments yielded significantly more grain than unfertilized maize. The green manures used were sunnhemp (*Crotalaria juncea*) and velvet beans (*Mucuna pruriens*). The result of the experiment showed that green manure crops were important for soil fertility improvement in Zambian cropping systems and were becoming increasingly important as a cheap source of biologically fixed nitrogen (Mulambu *et al.*, 2003).

There are two forms of fertilizers: the organic and inorganic fertilizers. The inorganic fertilizers that are in many types are not readily affordable by most of the smallholder farmers because they are expensive. Organic fertilizers are readily available and most smallholder farmers can afford to have access to them and be able to utilize them in the fertilization of crops. Organic manures are composed of agricultural wastes and residues of plant and animal life, green manure crops and improved fallow crops. The value of the organic manure in crop production lies in the nutrient content of the material and the release of the nutrients in the soil for crop uptake.

Schutz *et al.*, 2001 stated that in order to avoid loss of above-ground biomass due to bush fires, strong winds, termites, roaming village animals, or transhumance herds of cattle, it is justifiable to incorporate green manure crops into moist soil. The incorporated biomass decomposes and releases nutrients into the soil for the subsequent

crop to benefit from the released nutrients in the soil.

There are several green manure crops available for soil improvement, and a number of them have been evaluated to determine their effectiveness in the fixation of nitrogen and contribution of plant nutrients to the soil. Malama and Kondowe, 2003 carried out a study on the performance of green manures and grain legumes on severely acidic soils in Northern Zambia, and their effect on soil improvement. The green manures used were sunnhemp, soyabeans, cowpeas and velvet beans which were incorporated at flowering stage.

2.1.3 Biological nitrogen fixation

Legumes having the potential to fix atmospheric nitrogen represent a suitable alternative for supplying nutrients, substituting or complementing inorganic fertilization. Green manures do have marked changes and improvement in soil physical, chemical and biological characteristics and the subsequent crops grown after biomass incorporation benefit from the nitrogen fixed. Legumes have the capacity to conserve soil nitrogen by fixing atmospheric nitrogen gas unlike non-fixing plants (Giller and Wilson, 1991) and when the legume residues are decomposed they result in enhancing mineralization of soil organic nitrogen. Ojiem *et al*., 2000 reported that *Mucuna pruriens* green manure improved maize grain yield by 1.5 ton/ha compared to no incorporation, and Hauser and Nolte, 2002 obtained maize yields of more than 4 ton/ha after a short-term fallow with velvet beans.

Studies have been carried out to ascertain the benefits accrued from the use of velvet beans in soil improvement and hence grain yield. In West Africa and Central America Versteeg and Koudokpon, 1993; Buckles and Perales, 1995 reported that systems rotated with velvet beans showed improvements of 80-100% in grain yield. Velvet beans produced higher grain increase when incorporated in the soil than if left on top of the soil as mulch (Carsky *et al.*, 1998).

Buffalo bean's fixing capabilities of nitrogen, nutrient composition, amount of biomass production and the rate of mineralization (decomposition) to release nutrients into the soil for the benefit of the subsequent crop is not yet known. On the contrary, there is more information on the fixing capabilities of velvet beans unlike buffalo beans; for example, Pretty (1998) showed that velvet beans as an inter crop or sole crop provided more than 100 kg N/ ha to the maize that followed it.

2.1.4 Maize yield response to application of green manure and farm yard manure

Chikuwo *et al.*, 1999 indicated that groundnut and maize yields increment were obtained where manure had been applied at the rates up to 20 ton/ha at the majority of the sites in Zimbambwe. It was further noted that the differences in the qualities of manure used at the different sites (based on total manure N content) could have contributed to the variation in the response observed at the different sites. The nutrient composition and quality of manure is very important and these will determine the quantity to apply. In Malawi, farm yard manure is recommended at the rate of 2-12 ton/ha depending on soil fertility status and compost manure and green manure at the rates of about 20 ton/ha (FAO/AGL, 2000).

Pretty (1998) observed that the Honduran farmers were able to harvest some 2.5 to 3.2 ton/ha of maize when grown after velvet beans. The farmers also noted that maize that followed Mucuna yielded 3-4 ton/ha without application of nitrogen fertilizer.

Onyango *et al.*, 2001 conducted a study to establish the effect of relaying green manure legumes on yields of inter-cropped maize in smallholder farms of Trans Nzonia District, Kenya. The food legumes inter-cropped with maize were Common bean (*Phaseoulus vulgaris*), soybean (*Glycine max*), groundnuts (*Arachis hypogea*), and cowpea (*Vigna unguiculata*) of which after harvesting them were relayed with green manure legumes such as Sunnhemp (*Crotolaria brvidens*), Mucuna bean (*Mucuna spp.*) or Dolichos (*Lablab purpureus*). It was observed that after one year maize following *Mucuna spp.* gave yield of 9.3 ton /ha while after two years it was *Dolichos spp.* that gave the highest

yield of 8.5 ton/ha. These were followed by *Crotolaria spp.* and *Mucuna spp.* which yielded 6.3 ton/ ha each.

Odhiambo *et al*., 2010 stated that the use of green manure legumes as cover crops in rotation with maize has the potential to enhance maize yields. In their study conducted to determine the effect of green manure legumes-maize rotation system on maize growth and yield and, weed infestation levels. It was observed that maize grain yield following green manure legumes ranged between 2.6 and 10.59 Mg/ ha. Mureithi *et al.*, 2003 stated that incorporation of green manure crops promotes good yields of maize presumably due to increased nitrogen supply to the soil and reduced loss of nitrogen by volatilization (Hudgens, 2000).

Shamudzarira (2003) used a model to simulate maize yields from crops receiving various amounts of N, or from an unfertilized maize crop following velvet beans. He found that in environments where continuous maize cropping yields were between 150 and 500 kg grain/ha, rotation with velvet beans was predicted to give yield increments of over 1000 kg/ha when velvet beans was harvested at maturity and between 3000-5000 kg/ha when incorporated at flowering.

2.1.5 Nutrient partitioning in plant parts

The leaves are one of the plant organs that better reflect the mineral element content than any other plant organ (Marschner, 1986) and thus leaves are usually used for plant analysis. However, levels may differ between leaf blades and petioles in some species and with certain mineral nutrients (Marschner, 1986). He further noted that there was a fairly distinct decline with age for most mineral nutrient levels (except that of calcium) in plants and organs and noted that the decline was caused mainly by a relative increase in the proportion of structural material (cell walls and lignin) and of storage compounds (e.g., starch) in the dry matter. In addition, he also noted that fluctuations in environmental factors such as temperature and soil moisture can affect the mineral nutrient content of leaves considerably.

To quantify the source of nitrogen from green manure, the materials are required to be labelled with ^{15}N, a stable isotope of nitrogen. Brady (1990), stated that experiments with isotopically tagged nitrogen (^{15}N) had shown that only 2-3% of the immobilized nitrogen was mineralized annually. The material with high mineralization rate entails that the rate of release of the nutrients to the soil continuum will be high, and different materials have different mineralization rates.

CHAPTER THREE

3.0 MATERIALS AND METHODS

The study was conducted in two stages. The first stage involved the growing of green manure crops, application of kraal manure and then the ploughing under of the green manure crops at flowering stage. The second stage involved the growing of maize after the green manure had been ploughed under.

The research was conducted at the field station of the School of Agricultural Sciences, University of Zambia, from September, 2009 to June, 2010. The experimental site was located 15^{0} $25^{/}$ S and 28^{0} $20^{/}$ E, at an elevation of 1250 m above sea level. The site received 1,167.5 mm annual rainfall during the growing season and the rainfall data is presented in Appendix 1.

3.1 Experimental site

The land used for the research had not previously been planted to any legume crop. According to the cropping history, the previous crops grown on the experimental site were cereals.

The land was prepared by deep ploughing using a tractor disc plough. The site was then harrowed to break the clods to attain a fine tilth. Levelling was then carried out using hand hoes in order to reduce runoff water carrying soil particles from one part of the field to the other.

Prior to planting, soil samples were collected and taken for laboratory analysis in order to establish the initial fertility status of the site. Total soil nitrogen was determined using

the Kjeldah method (Bremner, 1960) and the exchangeable cations were determined by leaching ammonium ions through the soils and measuring the ions in the solution using the Atomic Absorption Spectrophotometer (AAS).

The organic carbon was determined by the chromate reduction method according to Walkley and Black (1934). Available phosphorous was analysed and determined using the Bray I method (Bray and Kurtz, 1945). The micro nutrients were determined using the chelating agent EDTA (Ethylenediaminetetraacetic acid) buffered at pH 4.65 and the extracted ions in solution were then determined by AAS (Table 1). Nitrogen-15 was measured by Mass Spectrometer.

The initial physical and chemical characteristics of the soil at the experimental site are given in Table 1.

Table 1: Initial chemical characteristics of the soil used in the experiment

Chemical Characteristics	Laboratory Results
pH ($CaCl_2$)	5.69
Organic matter	2.08%
Nitrogen	0.27%
Phosphorus	76.24 mg kg^{-1}
Potassium	0.92 cmol kg^{-1}
Calcium	3.67 cmol kg^{-1}
Magnesium	0.59 cmol kg^{-1}
Copper	1.73 mg kg^{-1}
Iron	55.43 mg kg^{-1}
Manganese	6.09 mg kg^{-1}
Zinc	10.49 mg kg^{-1}
Exchangeable Acidity	0.05 cmol kg^{-1}
Aluminium	0.01 cmol kg^{-1}
Hydrogen	0.04 cmol kg^{-1}

3.2 Kraal manure

Well decomposed kraal manure was collected from the Natural Resources Development College (NRDC) Livestock Section. The laboratory analysis was conducted and results are presented in Table 2. The kraal manure was applied at the rate of 12 ton/ha after being enriched with 10 atom% ^{15}N in furrows as band application at the same time green manure crops were sown. The furrows were buried with soil after the application of manure.

Table 2: Chemical characteristics of the kraal manure

Chemical Characteristics	Laboratory Results
Organic matter	33.60%
Nitrogen	1.30%
Phosphorus	0.10%
Potassium	1.77%
Calcium	0.39%
Magnesium	0.21%
Copper	26.80 mg kg^{-1}
Iron	31.55 mg kg^{-1}
Manganese	138.50 mg kg^{-1}
Zinc	61.50 mg kg^{-1}

3.3 Planting materials

Green manure species were buffalo beans, local landrace velvet beans (Sommerset) and an improved velvet beans (mutation derived line of Sommerset-SS 16-9-9). The seed for buffalo beans and local landrace velvet beans was collected from Nyamia and Mumbi area respectively of Petauke district, Eastern Province of Zambia.

The improved cultivar of velvet beans was secured from Plant Science Department at the University of Zambia. Two improved early maturing maize varieties (ZMS 402 and MRI 455) were bought and a local early maturing landrace was collected from Mumbi area of Petauke district.

3.4 Experimental design and crop management

3.4.1 Experimental design

The first experiment comprised of one factor: organic fertilizer source at 4 levels replicated four times in a Randomised Completely Block Design (RCBD). The levels were buffalo beans, improved beans, local velvet beans and kraal manure. The second experiment was composed of two factors: maize variety at 3 levels and fertilizer source at 5 levels resulting in a 15-treatment factorial combination replicated four times in a Randomised Completely Block Design (RCBD).

The entire experimental site was 54 m long and 16.5 m wide giving an area of 891 m^2. Each treatment plot measured 3.6 x 3 m, giving an area of 10.8 m^2. The pathways separating each block were 1.5 m wide.

3.4.2 Green manure crop management, harvesting of biomass and laboratory incubation

The green manure species (buffalo beans, velvet beans and the improved velvet beans) were planted on 28th September, 2009 at a spacing of 50 x 90 cm. The green manure species were put under irrigation. The recommended agronomic practices were carried

out.

At 52 days after sowing (DAS) the green manure species were labelled with 10 atom% ^{15}N urea at the rate of 20 kg N / ha. On 24th December, 2009, it was noticed that the two varieties of velvet beans had started flowering whilst buffalo beans had not. On 15th January 2010, the above-ground biomass and roots for the three plants from each plot were sampled and harvested. One plant was taken for incubation in the laboratory for the determination of the rate of mineralization in which 100 g of each material was mixed with 2 kg of soil. Soil samples were then collected weekly for 12 weeks. The samples collected were frozen and after 12 weeks were analysed.

The other two plants were put in the oven at 70^{o} C for 6 days and later the leaves, stems and roots separately ground into powder and later sent to Vienna, Austria for ^{15}N analysis.

3.4.3 Maize planting, harvesting and preparation of samples for laboratory analysis

On 17th January, 2010 three early maturing varieties of maize (ZMS 402, MRI 455, and a local landrace) were planted at a row spacing of 90 cm and plant to plant spacing of 25 cm on the same day after incorporating the green manure species.

The maize was basal dressed with Mono Ammonium Phosphate fertilizer at the rate of 40 kg $P_2 O_5$ / ha and 2 atom% ^{15}N labelled urea at the rate of 20 kg N / ha. After one month of emergence the maize was top dressed with 2 atom% ^{15}N at the rate of 92 kg N / ha labelled urea in a separate ^{15}N isotope subplot.

For pest control in maize Endosulfan was applied twice at the rate of 650 ml/ha against the control of stalk borers and leaf hoppers.

Maize was harvested on 8th June, 2010 at 142 days after planting. The maize stover and maize grain were ground passing through a 2 mm sieve at Mount Makulu Central Research Station, Lusaka and samples later sent to International Atomic Energy Agency in Vienna for ^{15}N analysis.

3.4.4 Determination of mineralization of green manure crops

For the determination of the rate of mineralization of the green manure species two methods were conducted: the laboratory incubation and the field condition. For the laboratory incubation, 100 g of each material (buffalo beans, local velvet beans and the improved velvet beans) was incorporated to 2 kg of soil and thoroughly mixed. Soil samples were later collected weekly for 12 weeks. The samples collected were frozen in the fridge and after 12 weeks were analysed in the laboratory. For the field condition soil samples were collected and frozen in the fridge at an interval of two weeks for 12 weeks and then analysed in the laboratory.

3.5 Data collection and statistical analysis

The data were collected and analysed using the GenStat Thirteenth Edition statistical package. The means were separated using the standard errors.

The following data were collected:

3.5.1 Maize grain yield (ton/ha): The data was collected from the grain harvest area

measuring 2 x 0.9 m, giving an area of 1.8 m^2. The grain was shelled and weighed using an electronic balance.

3.5.2 Plant height at physiological maturity (m): Data were collected at the time the plants attained physiological maturity- the time at which there was no any further increase in growth. Ten plants were randomly sampled and their heights measured.

3.5.3 One thousand seed weight (kg): 1000 grains of maize were counted and weighed using the electronic balance.

3.5.4 Ten cob grain weight (kg): Ten cobs were randomly sampled and total grain weighed using the electronic balance.

3.5.5 Biomass yield of green manure crops: The above-ground biomass was weighed using a spring balance.

3.5.6 Days to 50% flowering: The days to 50% flowering data was captured and recorded for the three early maturing varieties of maize.

3.5.7 Days to 50% silking: The number of days to 50% silking was recorded for the three early maturing varieties.

3.5.8 Mineralization of green manure crops: Data was captured over the period of twelve weeks at a weekly interval for the samples incubated in the laboratory, and at a two-week interval for the field component of the experiment.

3.5.9 Soil samples: Soil samples were collected shortly after cutting down green manure species and prior to biomass incorporation in order to determine the chemical characteristics of the soil.

CHAPTER FOUR

4.0 RESULTS

4.1 Green manure biomass

The results show a very significant difference on biomass production for the green manure species (p= 0.030) which were included in the study.

The highest dry matter biomass was obtained from local velvet beans with the value of 12.04 ton/ha and the improved velvet beans with the value of 10.9 ton/ha. The lowest dry matter yield was from buffalo beans with a value of 7.7 ton/ha as shown in Table 3.

Table 3: The dry matter biomass of the green manure species

Green manure biomass	Means
Buffalo beans	7.77
Improved velvet beans	10.87
Local velvet beans	12.04
LSD (5 %)	2.952
CV (%)	16.7

4.2 Effect of organic manure on chemical characteristics of soil collected shortly after harvest of green manure biomass

The effect of organic manure on soil parameters measured were highly significant (p< 0.001) for aluminium, exchangeable acidity, hydrogen, calcium, magnesium, copper, iron and organic matter. It was significant for manganese (p=0.006), nitrogen (p=0.01) and phosphorus (p=0.031); and non-significant for potassium, zinc and pH.

(a) Aluminium, exchangeable-acidity and hydrogen concentration in the soil

The effect of the green manure on aluminium, exchangeable acidity and hydrogen varied with the type of green manure species grown as indicated in Table 4.

The highest exchangeable-acidity was with local velvet beans (0.21 cmol/kg) and buffalo beans with a value of 0.20 cmol/kg. This was followed by the improved velvet beans with the value of 0.15 cmol/kg. The lowest concentration was with the control (the initial soil samples collected) with a value of 0.05 cmol/kg. The results further show variation in hydrogen concentration from the growth of different species of green manure. Local velvet beans gave the highest concentration of hydrogen in the soil with the value of 0.16 cmol/kg followed by the improved velvet beans and buffalo beans with the value of 0.11 cmol/kg each. The lowest was with the control with the value of 0.04 cmol/kg.

In terms of aluminium concentration in the soil there was no significant difference among the three types of green manure species. The green manure species gave the average aluminium concentration of 0.057 cmol/kg compared to the control which gave the value of 0.01 cmol/kg of aluminium concentration in the soil.

(b) Calcium, magnesium, phosphorus and nitrogen concentration in the soil

The results show that there was a variation in calcium, magnesium, phosphorus and nitrogen concentration in the soil after the growth of the green manure species compared to the control as presented in Table 4.

The results clearly indicate that there was no significant difference in calcium concentration in the soil among buffalo beans (0.72 cmol/kg), improved velvet beans (0.68 cmol/kg) and local velvet beans (0.64 cmol/kg) that gave the average calcium concentration of 0.68 cmol/kg. However, when compared to the control there was a significant difference as the control gave a relatively lower calcium concentration in the soil of 0.36 cmol/kg than the green manure species. With magnesium concentration in the soil, results show non-significant difference among the green manure species giving

an average value of 0.36 cmol/kg. When compared to the control, magnesium concentration in the soil was higher with the value of 0.79 cmol/kg than the green manure species.

The results show highest phosphorus concentration of the value of 57.75 mg/kg with buffalo beans followed by local velvet beans with the value of 39.31 mg/kg. This was followed by the improved velvet beans with the value of 32.60 mg/kg. The lowest phosphorus concentration was with the control with the value of 29.01 mg/kg.

The highest nitrogen concentration in the soil was with the improved velvet beans with the percentage of 0.19% followed by buffalo beans and local velvet beans with the percentage of 0.15% each. The nitrogen concentration in the soil with the control with the percentage value of 0.14% was similar with buffalo beans and the local velvet beans.

(c) Manganese, copper and iron concentration in the soil

The results obtained showed variation in manganese, copper and iron concentration in the soil as indicated in Table 4.

The highest manganese concentration was obtained from buffalo beans (16.67 cmol/kg), the improved velvet beans (14.31 cmol/kg) and local velvet beans (12.41 cmol/kg). The lowest value of 7.02 cmol/kg was with the control. With copper, the highest value of 2.69 cmol/kg was obtained with the improved velvet beans. This was followed by local velvet beans (1.42 cmol/kg) and then buffalo beans (1.39 cmol/kg). The lowest value was with the control (0.8 cmol/kg).

With iron, the highest concentration in the soil (76.18 mg/kg) was with the control followed by the local velvet beans with the value of 62.7 mg/kg. This was followed by the improved velvet beans with the value of 46.13 mg/kg. The lowest concentration of 6.15 mg/kg was with buffalo beans.

Table 4: Effect of organic manure on chemical characteristics of soil collected shortly after harvest of green manure biomass

Treatments	Al^3	Ca	Cu	Exc.A	Fe	H	K
Buffalo beans	0.06	0.72	1.39	0.20	6.15	0.11	0.75
Improved velvet	0.05	0.68	2.69	0.15	46.13	0.11	0.74
Local velvet	0.06	0.64	1.42	0.21	62.70	0.16	0.75
Control	0.01	0.36	0.80	0.05	76.18	0.04	0.73
LSD	0.011	0.113	0.587	0.030	9.025	0.022	0.097
CV (%)	15.2	11.5	22.8	12.1	11.6	13.4	8.0

Table 4, cont.

Treatments	Mg	Mn	N	OM	P	Zn	pH
Buffalo beans	0.38	16.67	0.15	3.12	57.75	5.63	5.33
Improved velvet	0.35	14.31	0.19	2.96	32.60	5.59	5.28
Local velvet	0.35	12.41	0.15	2.74	39.31	5.89	5.16
Control	0.79	7.02	0.14	1.54	29.01	6.75	5.50
LSD	0.036	4.42	0.031	0.443	18.65	1.606	0.655
CV (%)	4.8	21.5	11.2	10.5	28.8	16.5	7.6

(d) Organic matter content in the soil

The results show that there was no significant difference in organic matter content in the soil with regards to green manure species but there was a significant difference compared to the control as presented in Table 4.

The highest organic matter content in the soil was with buffalo beans (3.12%), improved velvet beans (2.96%) and local velvet beans (2.74%) compared to the lowest percentage of 1.54% of the control.

4.3 The mineralization rate of the laboratory incubated biomass of green manure species

The effect of green manure crops on the rate of mineralization of NH_4^+ was highly significant ($p< 0.001$) and for NO_3^- was significant ($p= 0.023$). The effect of time on mineralization rate of green manure crops was highly significant ($p< 0.001$) for NO_3^- and total N. The effect of green manure crops on the cumulative quantity of the mineralized NH_4^+ was highly significant ($p< 0.001$) and for NO_3^- was very significant ($p= 0.003$). The effect of time on the cumulative quantity of the mineralized NH_4^+, NO_3^- and total N was highly significant ($p< 0.001$).

The results showed that the mineralization rate for ammonium for the improved velvet beans and buffalo beans was higher than for local velvet beans as shown in Table 5.The mineralization rate of nitrate of buffalo beans, the improved velvet beans and local velvet beans was similar. The mineralization rate of nitrate of the green manure did not increase from week 1 to week 2. From week 2 the rate reduced and there after increased sharply from week 3 up to week 8. From week 8 the rate was almost constant up to week 12 as shown in Table 6.With total nitrogen the rate of mineralization of the green manure had a similar pattern as that of nitrate as shown in Table 6.

For the cumulative quantity of the mineralized ammonium and nitrate the results showed a sharp increase from the initial period (week 1) up to week 8 as shown in Table 7.Ammonium showed higher quantities mineralized from the green manure than nitrate as shown in Table 7.The percentage of total nitrogen mineralized had an upward

increase from week 1 up to week 12. The quantity of the mineralized ammonium and nitrate from the green manure for the period of 12 weeks was higher from buffalo beans and the improved velvet beans than from local velvet beans as shown in Table 8.

Table 5: The mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure

□□□Green manure□Rate of mineralization□	□□Green manure□Rate of mineralization□	□Green manure

Green manure□Rate of mineralization□	Rate of mineralization□
□	
□NH_4^+	NH_4^+□$N0_3^-$
$N0_3^-$□	
□Buffalo beans	
Buffalo beans□	
301□232.8	
301□232.8	
232.8□	
□Improved velvet	
Improved velvet□301.7	
301.7□228.7	
228.7□	
□Local velvet	
Local velvet□282.5	
282.5□216.4	
216.4□	
□LSD	
LSD□ 8.5	
8.5□	
8.45□	
8.45□	
□CV (%)	
CV (%)□ 7.1	
7.1□	
9.2□	
9.2□	
□□□□□□	
□□□□□	
□□□□	

□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ TIME	Rate of mineralization□ TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1			
Week 1□214.3	214.3□	0.1423□	
		0.1423□	
□Week 2			
Week 2□214.9	214.9□	0.138□	
		0.138□	
□Week 3			
Week 3□211.2	211.2□0.1346	0.1346□	
□Week 4			
Week 4□219.3	219.3□0.1457	0.1457□	
□Week 5			
Week 5□225.5	225.5□0.1486	0.1486□	

□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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310.9□
214□0.1423□□W
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613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
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613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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430□0.2759□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□			
□**NH_4^+**	**NH_4^{+}□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□	8.45□		
□CV (%)	CV (%)□	7.1	7.1□
9.2□	9.2□		
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□
Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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430□0.2759□□W
eek 3□
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633□0.4037□□W
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877□0.5829□□W
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3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

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Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
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2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□1188.2□877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□0.5829□□Week 5□1506.7□1127□□Week 5□1506.7□1127□Week 5□1506.7□1127□1506.7□1127□0.7428□□Week 6□1768.4□1367□1127□0.7428□□0.7428□□Week 6□1768.4□1367□□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

**mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure	**□Rate of mineralization□ □ □NH_4^+**	**Rate of mineralization□ NH_4^{+}□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□ 1.0385□□Week 8□2312.2□1864□ □Week 8□2312.2□1864□ Week 8□2312.2□1864□ 2312.2□1864□1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 1864□1.2369□□ 1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□				
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□				
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□				
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□				
□Local velvet Local velvet□282.5 282.5□216.4 216.4□				

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□ 0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□	**NH_4^+**□	**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□	□I	
mproved velvet□	1921.8□	1525□□	□L	

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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613.8
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894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□

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894.2□
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eek 4□1188.2□
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□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
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1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
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□Week

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1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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369□□Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
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12□3428.6□2816
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0.05152□□CV
(%)□ 4.6□
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
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70.17□110.9□
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0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
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□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans		

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
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LSD□35.09□55.5
□□CV (%)□
4.6□
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35.09□55.5□□C
V (%)□
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55.5□□CV (%)□
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□CV (%)□
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CV (%)□
4.6□
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4.6□
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9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
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eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
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Week 1□
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633□0.4037□□Week 4□1188.2□
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214□0.1423□□Week 2□
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1.0385□□Week
8□2312.2□1864□
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□

Rate of mineralization□

□TIME

TIME□NO_3^-

NO_3^-□Total N

Total N□

□Week 1

Week 1□214.3

214.3□

0.1423□

0.1423□

□Week 2

Week 2□214.9

214.9□

0.138□

0.138□

□Week 3

Week 3□211.2

211.2□0.1346

0.1346□

□Week 4

Week 4□219.3

219.3□0.1457

0.1457□

□Week 5

Week 5□225.5

225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□C V (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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430□0.2759□□W
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894.2□
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877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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894.2□
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633□0.4037□□W
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Week 4□1188.2□
877□0.5829□□W
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877□0.5829□□Week
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□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
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(%)□ 4.6□
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1864□1.2369□□
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9□2603.5□2105□
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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□1.8066□□Week
12□3428.6□2816
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(%)□ 4.6□
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11□3157.6□2577
□1.8066□□Week
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□1.8066□□Week
12□3428.6□2816
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(%)□ 4.6□
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Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□

NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
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633□0.4037□□W
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5□1506.7□1127□
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613.8 □
430□0.2759□□W
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633□0.4037□□W
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877□0.5829□□W
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430□0.2759□□W
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3□ 894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
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633□0.4037□□W
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877□0.5829□□W
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Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

**mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
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877□0.5829□□Week
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877□0.5829□□Week
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877□0.5829□□Week
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877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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11□3157.6□2577
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0.05152□□CV
(%)□ 4.6□
9.2 □
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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702□□LSD□
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0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□301.7	301.7□228.7	
228.7□			
□Local velvet	Local velvet□282.5	282.5□216.4	
216.4□			
□LSD	LSD□	8.5	
8.5□			
8.45□			
8.45□			
□CV (%)	CV (%)□	7.1	
7.1□			
9.2□			
9.2□			
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo				

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	
214	0.1423	
Week 2	613.8	
430	0.2759	
Week 3	894.2	
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	
1127		

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**			
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**	
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
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6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
1864□1.2369□□
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9□2603.5□2105□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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11□3157.6□2577

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70.17□110.9□
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2888.1□2340□1.6
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11□3157.6□2577
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12□3428.6□2816
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(%)□ 4.6□
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70.17□110.9□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
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2577□1.8066□□
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70.17□110.9□
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70.17□110.9□
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0.05152□□CV
(%)□ 4.6□
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6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
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310.9□
214□0.1423□□W
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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214□0.1423□□W
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430□0.2759□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
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□Week 2□
613.8 □
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eek 3□
894.2□
633□0.4037□□W
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Week 2□
613.8 □
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eek 3□
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633□0.4037□□W
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633□0.4037□□W
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877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

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2041.4□1603□1.0
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1603□1.0385□□
1.0385□□Week
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2312.2□1864□1.2
369□□Week
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10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure	**Rate of mineralization**	**Rate of mineralization**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□	301.7	301.7□228.7 228.7□
□Local velvet	Local velvet□	282.5	282.5□216.4 216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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Week
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10□2888.1□2340
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11□3157.6□2577
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10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423			
					0.1423		
Week 2	Week 2	214.9	214.9	0.138			
					0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□C V (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□ 4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species				
TIME	Cumulative mineralization		Cumulative mineralization	
	NH_4^+	NO_3^-	Total N	
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
	NH_4^+	NO_3^-	Total N	
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
	NH_4^+	NO_3^-	Total N	
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
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eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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Week 2□
613.8 □
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894.2□
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1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
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1367□0.8729□□
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1603□1.0385□□
1.0385□□Week
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Week
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2312.2□1864□1.2
369□□Week
9□2603.5□2105□
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70.17□110.9□
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(%)□ 4.6□
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1864□1.2369□□
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(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3		214.3□	0.1423□	
					0.1423□
□Week 2	Week 2□214.9		214.9□	0.138□	

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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□Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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Week 3□
894.2□

633□0.4037□□W
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877□0.5829□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
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633□0.4037□□W
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877□0.5829□□W
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0.4037□□Week
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877□0.5829□□W
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□Week
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877□0.5829□□W
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Week 4□1188.2□
877□0.5829□□W
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1188.2□
877□0.5829□□W
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877□0.5829□□W
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0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□**NH_4^+**
NH_4^+□$N0_3^-$
$N0_3^-$□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □				
Green manure	**□Rate of mineralization□ □NH$_4^+$**	**Rate of mineralization□ NH$_4^+$□N0$_3^-$**	**□ N0$_3^-$□**		
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□		
□Improved velvet	Improved velvet□301.7	301.7□228.7			

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□

NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo				

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□				

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ □ □**NH_4^+** **$NH_4^{+□}N0_3^-$** **$N0_3^{-□}$** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□	**Rate of mineralization□** □

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
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Week 3□
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

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1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
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□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
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633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
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633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
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877□0.5829□□Week
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633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
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877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
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9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
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(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week

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1.42□□Week
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□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□	Rate of mineralization□
□	□NH_4^+	NH_4^+□$N0_3^-$
□Buffalo beans	Buffalo beans□	301□232.8
		301□232.8
		232.8□
□Improved velvet	Improved velvet□	301.7
		301.7□228.7
		228.7□
□Local velvet	Local velvet□	282.5
		282.5□216.4
		216.4□
□LSD	LSD□	8.5
		8.5□
		8.45□
		8.45□
□CV (%)	CV (%)□	7.1
		7.1□
		9.2□
		9.2□
□□□□□□		
□□□□□		
□□□□		
□□□		
□□		
□		

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	**Cumulative mineralization**
Cumulative mineralization	**NH_4^+ NO_3^-**
Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
NH_4^+ NO_3^-	Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
NH_4^+ NO_3^-	Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
NO_3^- Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LS

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3		214.3□	0.1423□	
					0.1423□
□Week 2	Week 2□214.9		214.9□	0.138□	

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□
L		

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
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430□0.2759□□W
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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Week
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10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□			
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□			
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□			
□Local velvet Local velvet□282.5 282.5□216.4 216.4□			

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
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877□0.5829□□W
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5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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11□3157.6□2577
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12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	**NH_4^+**	**□NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	**NH_4^+**	**□NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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0.1423□□Week
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430□0.2759□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
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□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
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430□0.2759□□W
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
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877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
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Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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(%)□ 4.6□
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(%)□ 4.6□
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□301.7	301.7□228.7	
228.7□			
□Local velvet	Local velvet□282.5	282.5□216.4	
216.4□			
□LSD	LSD□	8.5	
8.5□			
8.45□			
8.45□			
□CV (%)			
CV (%)□	7.1		
7.1□			
9.2□			
9.2□			
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□
Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	
214	0.1423	
Week 2	613.8	
430	0.2759	
Week 3	894.2	
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	
1127		

| | | |

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME			
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**	
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578

0.1578□

□Week 10

Week 10□

234□0.1637

234□0.1637

0.1637□

□Week 11

Week 11□234.3

234.3□0.1642

0.1642□

□Week 12

Week 12□234.7

234.7□0.1725

0.1725□

□LSD

LSD□16.89

16.89□ 0.00988

0.00988□

□CV (%)

CV (%)□

9.2□

8.1□

9.2□

8.1□

8.1□

□□□□□□

□□□□□

□□□□

□□□

□□

□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
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613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
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eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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□Week 2□
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eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
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70.17□110.9□
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1.42□□Week
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12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2577□1.8066□□
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70.17□110.9□
0.05152□□CV
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70.17□110.9□
0.05152□□CV
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
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5□1506.7□1127□
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Week 2□
613.8 □
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894.2□
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430□0.2759□□W
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3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
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6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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(%)□ 4.6□
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1864□1.2369□□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME			
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**	
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□		

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
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877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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633□0.4037□□W
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□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
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877□0.5829□□W
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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877□0.5829□□W
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877□0.5829□□W
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Week 4□1188.2□
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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
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□Week
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70.17□110.9□
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(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
9.2 □

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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	NH_4^+□NO_3^-	Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□	
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□	
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□	
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo				

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
1.42□ □Week 10□2888.1□2340 □1.6368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □Week 10□2888.1□2340 □1.6368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ Week 10□2888.1□2340 □1.6368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 2888.1□2340□1.6 368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NO_3^-	
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□	**Rate of mineralization□ □ □NH_4^+ NH_4^{+}□$N0_3^-$ $N0_3^{-}$□**		
□Buffalo beans Buffalo beans□ 301□232.8	301□232.8 232.8□		
□Improved velvet Improved velvet□301.7	301.7□228.7		

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	**□**
□NH_4^+	**NH_4^+□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	□
Week 2□	613.8	430□	0.2759□□	□
Week 3□	894.2□	633□	0.4037□□	□
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
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□Week 3□
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
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877□0.5829□□Week
5□1506.7□1127□
□Week
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877□0.5829□□Week
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Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
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877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
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Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
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Week
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1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□

70.17□110.9□
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(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
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□1.6368□□Week
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□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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SD□
70.17□110.9□
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
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Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578

0.1578□

□Week 10

Week 10□

234□0.1637

234□0.1637

0.1637□

□Week 11

Week 11□234.3

234.3□0.1642

0.1642□

□Week 12

Week 12□234.7

234.7□0.1725

0.1725□

□LSD

LSD□16.89

16.89□ 0.00988

0.00988□

□CV (%)

CV (%)□

9.2□

8.1□

9.2□

8.1□

8.1□

□□□□□□

□□□□□

□□□□

□□□

□□

□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species					
TIME	Cumulative mineralization		Cumulative mineralization		
	NH_4^+	NO_3^-	Total N		
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
	NH_4^+	NO_3^-	Total N		
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
	NH_4^+	NO_3^-	Total N		
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
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613.8 □
430□0.2759□□W
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894.2□
633□0.4037□□W
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633□0.4037□□W
eek 4□1188.2□
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□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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6.2□□
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9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□NH_4^+□NO_3^-□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□			
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□			
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□			
□Local velvet Local velvet□282.5 282.5□216.4 216.4□			

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□
1188.2□
877□0.5829□□Week 5□
1506.7□
1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□
1188.2□
877□0.5829□□Week 5□
1506.7□
1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□
1188.2□
877□0.5829□□Week 5□
1506.7□
1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
Cumulative mineralization
Cumulative mineralization
NH_4^+ NO_3^-
Buffalo beans
1923.6 1525 I mproved velvet
1921.8 1525 L ocal velvet
1833 1439 LS D 35.09 55.5
NH_4^+ NO_3^-
Buffalo beans
1923.6 1525 I mproved velvet
1921.8 1525 L ocal velvet
1833 1439 LS D 35.09 55.5
NH_4^+ NO_3^-
Buffalo beans
1923.6 1525 I mproved velvet
1921.8 1525 L ocal velvet
1833 1439 LS D 35.09 55.5
NO_3^- Buffalo beans
1923.6 1525 I mproved velvet
1921.8 1525 L ocal velvet
1833 1439 LS D 35.09 55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME			
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**	
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
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eek 4□1188.2□
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Week 2□
613.8 □
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Week 3□
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
				0.1423□	
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
				0.138□	
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
				229□0.1484	
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
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5□1506.7□1127□
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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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(%)□ 4.6□
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

| | | |

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

| | | |

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□ □Week 1□
310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W
eek 4□1188.2□
877□0.5829□ □W
eek
5□1506.7□1127□
NO_3^-□Total
N□ □Week 1□
310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W
eek 4□1188.2□
877□0.5829□ □W
eek
5□1506.7□1127□
Total N□ □Week
1□ 310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W
eek 4□1188.2□
877□0.5829□ □W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
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2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□			
□**NH_4^+**	**NH_4^{+}□**	**$N0_3^-$**	**$N0_3^{-}$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	
□□	NH_4^+□	NO_3^- □	Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
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(%)□ 4.6□
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(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□

NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□				
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□				
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□				
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□				
□Local velvet Local velvet□282.5 282.5□216.4 216.4□				
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□				
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□				

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578

0.1578□

□Week 10

Week 10□

234□0.1637

234□0.1637

0.1637□

□Week 11

Week 11□234.3

234.3□0.1642

0.1642□

□Week 12

Week 12□234.7

234.7□0.1725

0.1725□

□LSD

LSD□16.89

16.89□ 0.00988

0.00988□

□CV (%)

CV (%)□

9.2□

8.1□

9.2□

8.1□

8.1□

□□□□□□

□□□□□

□□□□

□□□

□□

□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□

Green manure□Rate of mineralization□	Rate of mineralization□ □ □NH_4^+	NH_4^+□$N0_3^-$	$N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
	8.45□		
□CV (%)	CV (%)□ 7.1	7.1□	9.2□
	9.2□		
□□□□□□ □□□□□ □□□□ □□□ □□ □			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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0.2759□□Week
3□ 894.2□
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5□1506.7□1127□
□Week 3□
894.2□
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Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□

Rate of mineralization□

□TIME

TIME□NO_3^-

NO_3^-□Total N

Total N□

□Week 1

Week 1□214.3

214.3□

0.1423□

0.1423□

□Week 2

Week 2□214.9

214.9□

0.138□

0.138□

□Week 3

Week 3□211.2

211.2□0.1346

0.1346□

□Week 4

Week 4□219.3

219.3□0.1457

0.1457□

□Week 5

Week 5□225.5

225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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633□0.4037□□W
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877□0.5829□□W
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0.4037□□Week
4□1188.2□
877□0.5829□□W
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877□0.5829□□W
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Week 4□1188.2□
877□0.5829□□W
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1188.2□

877□0.5829□□Week
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877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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Week
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□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			
8.45□			
□CV (%)	CV (%)□	7.1	7.1□
9.2□			
9.2□			
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
	1921.8□1525□□Local velvet□
	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
	1921.8□1525□□Local velvet□
	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
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□1.6368□□Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Total N□□Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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□1.6368□□Week
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70.17□110.9□
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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1.42□□Week
10□2888.1□2340
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11□3157.6□2577

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70.17□110.9□
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□2.0702□□LSD□
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(%)□ 4.6□
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^+□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□				

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
Cumulative mineralization	
Cumulative mineralization	
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
Improved velvet	
1921.8	1525
Local velvet	
1833	1439
LSD	35.09
55.5	
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
Improved velvet	
1921.8	1525
Local velvet	
1833	1439
LSD	35.09
55.5	
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
Improved velvet	
1921.8	1525
Local velvet	
1833	1439
LSD	35.09
55.5	
NO_3^-	Buffalo beans
1923.6	1525
Improved velvet	
1921.8	1525
Local velvet	
1833	1439
LSD	35.09
55.5	
Buffalo beans	
1923.6	1525
Improved velvet	
1921.8	1525
Local velvet	
1833	1439
LSD	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NO_3^-		
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□		

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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0.1423□□Week
2□ 613.8
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430□0.2759□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
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0.2759□□Week
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 3□
894.2□
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894.2□
633□0.4037□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
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70.17□110.9□
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(%)□ 4.6□
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(%)□ 4.6□
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2603.5□2105□
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□			
□**NH_4^+**	**NH_4^{+}□**	**$N0_3^-$**	**$N0_3^{-}$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□	8.45□		
□CV (%)	CV (%)□	7.1	7.1□
9.2□	9.2□		
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3			214.3		0.1423	
						0.1423	
Week 2							
Week 2	214.9			214.9		0.138	
						0.138	
Week 3							
Week 3	211.2			211.2	0.1346		
						0.1346	
Week 4							
Week 4	219.3			219.3	0.1457		
						0.1457	
Week 5							
Week 5	225.5			225.5	0.1486		
						0.1486	
Week 6							
Week 6	227.8			227.8	0.1455		

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	430□0.2759□□	□Week 3□
894.2□	633□0.4037□□	□Week 4□
1188.2□	877□0.5829□□	□Week 5□
1506.7□	1127□	
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	430□0.2759□□	□Week 3□
894.2□	633□0.4037□□	□Week 4□
1188.2□	877□0.5829□□	□Week 5□
1506.7□	1127□	
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	430□0.2759□□	□Week 3□
894.2□	633□0.4037□□	□Week 4□
1188.2□	877□0.5829□□	□Week 5□
1506.7□	1127□	
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME			
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**	
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^+□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□	301.7	301.7□228.7 228.7□
□Local velvet	Local velvet□	282.5	282.5□216.4 216.4□
□LSD	LSD□	8.5	8.5□
	8.45□		8.45□
□CV (%)	CV (%)□	7.1	7.1□
	9.2□		9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486
0.1486□	
□Week 6	
Week 6□227.8	227.8□0.1455
0.1455□	
□Week 7	
Week 7□	
229□0.1484	
229□0.1484	
0.1484□	
□Week 8	

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
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(%)□ 4.6□
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(%)□ 4.6□
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Week
10□2888.1□2340
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12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
				0.1423□	
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
				0.138□	
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
				229□0.1484	
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
				233□0.1546	
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
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Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□

Green manure□Rate of mineralization□	Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet	Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet	Local velvet□282.5 282.5□216.4 216.4□
□LSD	LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%)	CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □	

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

		70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□	**Rate of mineralization□**	**Rate of mineralization□ □ □NH_4^+ $NH_4^{+□}N0_3^-$ $N0_3^{-□}$**	
	□Buffalo beans	Buffalo beans□ 301□232.8 301□232.8 232.8□	
	□Improved velvet	Improved velvet□301.7 301.7□228.7 228.7□	
	□Local velvet	Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
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3□ 894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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(%)□ 4.6□
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(%)□ 4.6□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
NH_4^+□NO_3^-		
□□Buffalo beans□		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□**NH_4^+**
NH_4^+□N0_3^-
N0_3^-□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**			
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**	
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□		

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
	□NH_4^+□NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
	NH_4^+□NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
	NO_3^-□□Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

NH_4^+□NO_3^-□Total

N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

NO_3^-□Total

N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

| | | |

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME			
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**	
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□Total N□□	Week 1□	

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ **Cumulative mineralization□□**	**□□NH_4^+□NO_3^-□Total N□□**
Week 1□ 310.9□	214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□	633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□	
□NH_4^+□NO_3^-□Total N□□	
Week 1□ 310.9□	214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□	633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□	
NH_4^+□NO_3^-□Total N□□	
Week 1□ 310.9□	214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□	633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□	
NO_3^-□Total N□□	
Week 1□ 310.9□	214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NO_3^-		
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
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□Week 2□
613.8 □
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eek 3□
894.2□
633□0.4037□□W
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613.8 □
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894.2□
633□0.4037□□W
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877□0.5829□□W
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613.8
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894.2□
633□0.4037□□W
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430□0.2759□□W
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894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
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□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
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Week
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2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
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2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**			
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**	
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	**Cumulative mineralization**	**Cumulative mineralization**
		NH_4^+
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ $NH_4^{+□}N0_3^-$ $N0_3^{-□}$					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□ 1833□1439□□LS D□35.09□55.5□ □NH_4^+□NO_3^- □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ NH_4^+□NO_3^- □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ TIME	Rate of mineralization□ NO_3^-	□Total N Total N□
□Week 1	Week 1□214.3	214.3□ 0.1423□
		0.1423□
□Week 2	Week 2□214.9	214.9□ 0.138□
		0.138□
□Week 3	Week 3□211.2	211.2□0.1346
		0.1346□
□Week 4	Week 4□219.3	219.3□0.1457
		0.1457□
□Week 5	Week 5□225.5	225.5□0.1486
		0.1486□
□Week 6	Week 6□227.8	227.8□0.1455

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□

Rate of mineralization□

□TIME

TIME□NO_3^-

NO_3^-□Total N

Total N□

□Week 1

Week 1□214.3

214.3□

0.1423□

0.1423□

□Week 2

Week 2□214.9

214.9□

0.138□

0.138□

□Week 3

Week 3□211.2

211.2□0.1346

0.1346□

□Week 4

Week 4□219.3

219.3□0.1457

0.1457□

□Week 5

Week 5□225.5

225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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633□0.4037□□W
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877□0.5829□□W
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□Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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10□2888.1□2340
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□ 1833□1439□□LS D□35.09□55.5□ □NH_4^+□NO_3^- □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ NH_4^+□NO_3^- □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□ Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
NH_4^+□NO_3^-		
□□Buffalo beans□		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization
Cumulative mineralization
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NO_3^-
Total N
Week 1
310.9
214
0.1423
W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NO_3^-
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure	**□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7	

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**			
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**	
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□ 1.0385□□Week 8□2312.2□1864□ □Week 8□2312.2□1864□ Week 8□2312.2□1864□ 2312.2□1864□1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 1864□1.2369□□ 1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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430□0.2759□□W
eek 3□
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
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877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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894.2□
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eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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0.05152□□CV
(%)□ 4.6□
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Week
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

eek
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0.5829□□Week
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Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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9□2603.5□2105□
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11□3157.6□2577
□1.8066□□Week
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(%)□ 4.6□
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Week
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11□3157.6□2577
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
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11□3157.6□2577
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11□3157.6□2577
□1.8066□□Week
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□1.8066□□Week
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□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

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(%)□ 4.6□
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6.2□□
2577□1.8066□□
1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
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9.2 □
6.2□□
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(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

| | | |

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ TIME	Rate of mineralization□ NO_3^-	□Total N Total N□
□Week 1		
Week 1□214.3	214.3□	0.1423□
		0.1423□
□Week 2		
Week 2□214.9	214.9□	0.138□
		0.138□
□Week 3		
Week 3□211.2	211.2□0.1346	0.1346□
□Week 4		
Week 4□219.3	219.3□0.1457	0.1457□
□Week 5		
Week 5□225.5	225.5□0.1486	0.1486□
□Week 6		
Week 6□227.8	227.8□0.1455	

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	NO_3^-□Total N□□
Week 1□	310.9□
214□0.1423□□W	

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Total N□□Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
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(%)□ 4.6□
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(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□CV (%)□ 4.6□ 9.2 □ 6.2□ □
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NO_3^-
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME			
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**	
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure	**Rate of mineralization**	**Rate of mineralization**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
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430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$

Buffalo beans
Buffalo beans
301 232.8
301 232.8
232.8

Improved velvet
Improved velvet 301.7
301.7 228.7
228.7

Local velvet
Local velvet 282.5
282.5 216.4
216.4

LSD
LSD 8.5
8.5
8.45
8.45

CV (%)
CV (%) 7.1
7.1
9.2
9.2

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization
Rate of mineralization

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2577□1.8066□□
1.8066□□Week
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70.17□110.9□
0.05152□□CV
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12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□ 1833□1439□□LS D□35.09□55.5□
□**NH_4^+**□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
NH_4^+□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
NO_3^-□□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
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877□0.5829□□W
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□Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
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1367□0.8729□□
0.8729□□Week
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Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
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1603□1.0385□□
1.0385□□Week
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9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□	**Rate of mineralization□ □ □NH_4^+ NH_4^{+}□$N0_3^-$ $N0_3^-$□**		
□Buffalo beans Buffalo beans□ 301□232.8	301□232.8 232.8□		
□Improved velvet Improved velvet□301.7	301.7□228.7		

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	**NH_4^+□NO_3^-**	
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□35.09□	55.5□	
□	**NH_4^+□NO_3^-**	
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□			
□**NH_4^+**	**NH_4^{+}□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo				

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

| | | |

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□

301□232.8

301□232.8

232.8□

□Improved velvet

Improved velvet□301.7

301.7□228.7

228.7□

□Local velvet

Local velvet□282.5

282.5□216.4

216.4□

□LSD

LSD□ 8.5

8.5□

8.45□

8.45□

□CV (%)

CV (%)□ 7.1

7.1□

9.2□

9.2□

□□□□□□

□□□□□

□□□□

□□□

□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
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10□2888.1□2340
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□CV (%)□ 4.6□ 9.2 □ 6.2□ □
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□ TIME	Rate of mineralization□ TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1			
Week 1□214.3	214.3□	0.1423□	
		0.1423□	
□Week 2			
Week 2□214.9	214.9□	0.138□	
		0.138□	
□Week 3			
Week 3□211.2	211.2□0.1346	0.1346□	
□Week 4			
Week 4□219.3	219.3□0.1457	0.1457□	
□Week 5			
Week 5□225.5	225.5□0.1486	0.1486□	
□Week 6			
Week 6□227.8	227.8□0.1455	0.1455□	
□Week 7			
Week 7□ 229□0.1484			
	229□0.1484	0.1484□	
□Week 8			
Week 8□ 233□0.1546			
	233□0.1546	0.1546□	
□Week 9			
Week 9□233.9			

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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11□3157.6□2577
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10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	**NH_4^+**	**□NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	**NH_4^+**	**□NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□				

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	
214	0.1423	
Week 2	613.8	
430	0.2759	
Week 3	894.2	
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	
1127		

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□NH_4^+
NH_4^+□$N0_3^-$
$N0_3^-$□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NO_3^-		
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure	**□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7	

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ NO_3^-	Rate of mineralization□ NO_3^-□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

| | | |

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□ 1833□1439□□LS D□35.09□55.5□
□NH_4^+□NO_3^- □□Buffalo beans□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
NH_4^+□NO_3^- □□Buffalo beans□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
NO_3^-□□Buffalo beans□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□ TIME	Rate of mineralization□ NO_3^-	□TIME TIME□ NO_3^-	NO_3^-□Total N	Total N□
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				
□Week 2				
Week 2□214.9				
214.9□				
0.138□				
0.138□				
□Week 3				
Week 3□211.2				
211.2□0.1346				
0.1346□				
□Week 4				
Week 4□219.3				
219.3□0.1457				
0.1457□				
□Week 5				
Week 5□225.5				
225.5□0.1486				
0.1486□				
□Week 6				
Week 6□227.8				
227.8□0.1455				
0.1455□				
□Week 7				
Week 7□				
229□0.1484				
229□0.1484				
0.1484□				
□Week 8				
Week 8□				
233□0.1546				
233□0.1546				
0.1546□				
□Week 9				
Week 9□233.9				

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2888.1□2340□1.6368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2340□1.6368□ □ 1.6368□ □Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
Week 11□3157.6□2577 □1.8066□ □Week 12□3428.6□2816 □2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
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12□3428.6□2816
□2.0702□□LSD□
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(%)□ 4.6□
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Week
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□1.6368□□Week
11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
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□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1	Week 1□214.3	214.3□	0.1423□		
			0.1423□		
□Week 2	Week 2□214.9	214.9□	0.138□		
			0.138□		
□Week 3	Week 3□211.2	211.2□0.1346	0.1346□		
□Week 4	Week 4□219.3	219.3□0.1457	0.1457□		
□Week 5	Week 5□225.5	225.5□0.1486			

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^+□ $N0_3^-$	$N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
Cumulative mineralization	
Cumulative mineralization	
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
Buffalo beans	
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of mineralization□	**Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7			

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
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70.17□110.9□
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70.17□110.9□
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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11□3157.6□2577

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70.17□110.9□
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(%)□ 4.6□
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV

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0.05152□□CV
(%)□ 4.6□
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
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Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
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eek 4□1188.2□
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eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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214□0.1423□□W
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894.2□
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894.2□
633□0.4037□□W
eek 4□1188.2□
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□Week 2□
613.8 □
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894.2□
633□0.4037□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
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633□0.4037□□W
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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8□2312.2□1864□
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8□2312.2□1864□
2312.2□1864□1.2
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□
4.6□
9.2□□
9.2□□
□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative mineralization□□	**Cumulative mineralization□□□□NH_4^+□NO_3^-□Total N□□Week 1□**

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

| | | |

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
				0.1423□	
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
				0.138□	
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
				229□0.1484	
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
				233□0.1546	
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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894.2□
633□0.4037□□W
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430□0.2759□□W
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3□ 894.2□
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633□0.4037□□W
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877□0.5829□□W
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633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	**□ □NH$_4^+$**
			NH$_4^+$□N0$_3^-$
			N0$_3^-$□
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
			232.8□
□Improved velvet	Improved velvet□	301.7	301.7□228.7
			228.7□
□Local velvet	Local velvet□	282.5	282.5□216.4
			216.4□
□LSD	LSD□	8.5	8.5□
		8.45□	8.45□
□CV (%)	CV (%)□	7.1	7.1□
		9.2□	9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO$_3^-$

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	
	□□NH_4^+	□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□□
Improved velvet□	1921.8□	1525□□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□W eek 2□ 613.8 □ 430□0.2759□□W eek 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□
NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□**NH_4^+**
NH_4^+□N0_3^-
N0_3^-□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**					
□TIME	**TIME□NO_3^-**		**NO_3^-□Total N**		**Total N□**	
□Week 1						
Week 1□214.3						
214.3□						
0.1423□						
0.1423□						

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□301.7	301.7□228.7	
228.7□			
□Local velvet	Local velvet□282.5	282.5□216.4	
216.4□			
□LSD	LSD□	8.5	
8.5□			
8.45□			
8.45□			
□CV (%)			
CV (%)□	7.1		
7.1□			
9.2□			
9.2□			
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□ Local velvet□ 1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□ 1439□□LSD□35.09□55.5□□CV (%)□ 4.6□ 9.2□□
□LSD□35.09□55.5□□CV (%)□ 4.6□ 9.2□□
LSD□35.09□55.5□□CV (%)□ 4.6□ 9.2□□
35.09□55.5□□CV (%)□ 4.6□ 9.2□□
55.5□□CV (%)□ 4.6□ 9.2□□
□CV (%)□ 4.6□ 9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
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633□0.4037□□W
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877□0.5829□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
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Week
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^+□$N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□Total N□□	Week 1□	

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□Week 2□	613.8 □
430□0.2759□□Week 3□	894.2□
633□0.4037□□Week 4□	1188.2□
877□0.5829□□Week 5□	1506.7□
1127□	

□NH_4^+□NO_3^- □Total N□□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□
1188.2□
877□0.5829□□Week 5□
1506.7□
1127□

NH_4^+□NO_3^- □Total N□□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□
1188.2□
877□0.5829□□Week 5□
1506.7□
1127□

NO_3^-□Total N□□
Week 1□
310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
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633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
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2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
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(%)□ 4.6□
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

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1.42□□Week
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□1.6368□□Week
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70.17□110.9□
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure	**□Rate of mineralization□**	**Rate of mineralization□**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□	8.45□		
□CV (%)	CV (%)□	7.1	7.1□
9.2□	9.2□		
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□

301□232.8

301□232.8

232.8□

□Improved velvet

Improved velvet□301.7

301.7□228.7

228.7□

□Local velvet

Local velvet□282.5

282.5□216.4

216.4□

□LSD

LSD□ 8.5

8.5□

8.45□

8.45□

□CV (%)

CV (%)□ 7.1

7.1□

9.2□

9.2□

□□□□□□

□□□□□

□□□□

□□□

□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	NO_3^-□Total N□□
Week 1□	310.9□
214□0.1423□□W	

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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70.17□110.9□
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10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	**□**
□NH_4^+	**NH_4^+□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□				

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□
L		

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
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□1.6368□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
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(%)□ 4.6□
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6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	**□Cumulative mineralization□□**
Cumulative mineralization□□	**□□NH_4^+□NO_3^-**
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	□□Buffalo beans□
1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□	**NH_4^+□NO_3^-**
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LS

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
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9□2603.5□2105□
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
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□1.6368□□Week
11□3157.6□2577

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□2.0702□□LSD□
70.17□110.9□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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6.2□□
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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0.05152□□CV
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

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Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
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894.2□
633□0.4037□□W
eek 4□1188.2□
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□Week 2□
613.8 □
430□0.2759□□W
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613.8 □
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eek 3□
894.2□
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Week 3□
894.2□
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877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
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1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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2312.2□1864□1.2
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NH_4^+	**NO_3^-**	**Total**
N		Week 1
310.9		
214	0.1423	
Week 2		
613.8		
430	0.2759	
Week 3		
894.2		
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	1127

NO_3^-	**Total**
N	
Week 1	
310.9	
214	0.1423
Week 2	
613.8	
430	0.2759
Week 3	
894.2	
633	0.4037
Week 4	1188.2
877	0.5829
Week 5	1506.7
1127	

Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1	Week 1□214.3	214.3□	0.1423□		
			0.1423□		
□Week 2	Week 2□214.9	214.9□	0.138□		

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization
Cumulative mineralization
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NO_3^-
Total N
Week 1
310.9
214
0.1423
W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	□
Week 2□	613.8	430□	0.2759□□	□
Week 3□	894.2□	633□	0.4037□□	□
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**			
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**	
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□35.09□	55.5□	
□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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Week 2□
613.8 □
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894.2□
633□0.4037□□W
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□Week 3□
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633□0.4037□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□Week 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□ 613.8 □

430□0.2759□□Week 3□ 894.2□

633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species
Green manure □**Cumulative mineralization**□□ **Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □**NH_4^+**□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NH_4^+**□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LS

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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5□1506.7□1127□
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5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
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2340□1.6368□□
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11□3157.6□2577
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(%)□ 4.6□
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Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
NH_4^+□NO_3^-		
□□Buffalo beans□		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
	NH_4^+	NO_3^-		
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
	NH_4^+	NO_3^-		
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	**TIME□NO_3^-**
NO_3^-□Total N	**Total N□**
□Week 1	Week 1□214.3
214.3□	0.1423□
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□**Rate of mineralization**□	**Rate of mineralization**□
□**TIME**	**TIME**□**NO_3^-**
NO_3^-□**Total N**	**Total N**□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□			
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□			
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□			
□Local velvet Local velvet□282.5 282.5□216.4 216.4□			

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□					
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□					
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□					
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week					

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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894.2□
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

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1367□0.8729□□
0.8729□□Week
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2041.4□1603□1.0
385□□Week
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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(%)□ 4.6□
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□1.6368□□Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□CV (%)□ 4.6□ 9.2 □ 6.2□ □
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+	□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ NO_3^-	Rate of mineralization□ NO_3^-□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

Total N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

| | | |

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□

Rate of mineralization□

□TIME

TIME□NO_3^-

NO_3^-□Total N

Total N□

□Week 1

Week 1□214.3

214.3□

0.1423□

0.1423□

□Week 2

Week 2□214.9

214.9□

0.138□

0.138□

□Week 3

Week 3□211.2

211.2□0.1346

0.1346□

□Week 4

Week 4□219.3

219.3□0.1457

0.1457□

□Week 5

Week 5□225.5

225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
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613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
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Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
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(%)□ 4.6□
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6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-□□Buffalo beans□1923.6□1525□□Improved velvet□1921.8□1525□□Local velvet□1833□1439□□LSD□35.09□55.5□
□□NH_4^+□NO_3^-□□Buffalo beans□1923.6□1525□□Improved velvet□1921.8□1525□□Local velvet□1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-□□Buffalo beans□1923.6□1525□□Improved velvet□1921.8□1525□□Local velvet□1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^{+}□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□			
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□			
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□			
□Local velvet Local velvet□282.5 282.5□216.4 216.4□			

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

| | | |

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	
214	0.1423	
Week 2	613.8	
430	0.2759	
Week 3	894.2	
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	
1127		

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
				0.1423□	
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
				0.138□	
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
				229□0.1484	
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
				233□0.1546	
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Total N□□Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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702□□LSD□
70.17□110.9□
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0.05152□□CV
(%)□ 4.6□
9.2 □
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2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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70.17□110.9□
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(%)□ 4.6□
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LSD□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□□Local velvet□
1833□1439□□LSD□35.09□55.5□Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ **NO_3^-**□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure	**□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7			

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**		
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1			
Week 1□214.3			
214.3□			
0.1423□			
0.1423□			

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□		

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
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□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
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633□0.4037□□W
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633□0.4037□□W
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877□0.5829□□W
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Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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894.2□
633□0.4037□□W
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
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7□2041.4□1603□
2041.4□1603□1.0
385□□Week
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1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
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6.2□□
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1.2369□□Week
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
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12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
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□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□	
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□	
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□	
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	**NH_4^+□NO_3^-**	**NH_4^+□NO_3^-**
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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3428.6□2816□2.0
702□□LSD□
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(%)□ 4.6□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
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894.2□
633□0.4037□□W
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5□1506.7□1127□
0.1423□□Week
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□
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894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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894.2□
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **$NH_4^{+□}N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

Total N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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369□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
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Week
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11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
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1.6368□□Week
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0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□C V (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□ 4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□

NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ NO_3^-	Rate of mineralization□ NO_3^-□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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70.17□110.9□
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10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
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Week
9□2603.5□2105□
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□1.6368□□Week
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(%)□ 4.6□
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6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ $NH_4^{+□}N0_3^-$ $N0_3^{-□}$					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
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5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□

301□232.8

301□232.8

232.8□

□Improved velvet

Improved velvet□301.7

301.7□228.7

228.7□

□Local velvet

Local velvet□282.5

282.5□216.4

216.4□

□LSD

LSD□ 8.5

8.5□

8.45□

8.45□

□CV (%)

CV (%)□ 7.1

7.1□

9.2□

9.2□

□□□□□□

□□□□□

□□□□

□□□

□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	□NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	NH_4^+□NO_3^- □Total N□□
Week 1□	310.9□
214□0.1423□□W	eek 2□
613.8 □	430□0.2759□□W
eek 3□	894.2□
633□0.4037□□W	eek 4□1188.2□
877□0.5829□□W	eek
5□1506.7□1127□	NO_3^-□Total N□□
Week 1□	310.9□
214□0.1423□□W	

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	**□ □NH_4^+ $NH_4^{+□}N0_3^-$ $N0_3^{-□}$**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□	301.7	301.7□228.7

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

| | | |

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans Buffalo beans□ 301□232.8
301□232.8
232.8□

□Improved velvet Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet Local velvet□282.5
282.5□216.4
216.4□

□LSD LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%) CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
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□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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6.2□□
2603.5□2105□
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10□2888.1□2340
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□**NH_4^+**
NH_4^+□$N0_3^-$
$N0_3^-$□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	**TIME□NO_3^-**
NO_3^-□Total N	**Total N□**
□Week 1	Week 1□214.3
214.3□	0.1423□
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NO_3^-	
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
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613.8
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eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	**□**
□NH_4^+	**NH_4^+□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□			
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□			
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□			
□Local velvet Local velvet□282.5 282.5□216.4 216.4□			

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423			
					0.1423		
Week 2	Week 2	214.9	214.9	0.138			
					0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NH_4^+
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5
		NO_3^-
	Buffalo beans	1923.6
	Improved velvet	1921.8
	Local velvet	1833
	LSD	35.09
		55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□				
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□				
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□				
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□				
□Local velvet Local velvet□282.5 282.5□216.4 216.4□				
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□				

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	
214	0.1423	
Week 2	613.8	
430	0.2759	
Week 3	894.2	
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	
1127		

| | | |

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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Week
9□2603.5□2105□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□	
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□	
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□	
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Buffalo beans□
1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□C V (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□ 4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

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□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+		
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NO_3^-		
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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□Week 2□
613.8 □
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eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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633□0.4037□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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369□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
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(%)□ 4.6□
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Week
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□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
NH_4^+□NO_3^-		
□□Buffalo beans□		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□

Rate of mineralization□

□TIME

TIME□NO_3^-

NO_3^-□Total N

Total N□

□Week 1

Week 1□214.3

214.3□

0.1423□

0.1423□

□Week 2

Week 2□214.9

214.9□

0.138□

0.138□

□Week 3

Week 3□211.2

211.2□0.1346

0.1346□

□Week 4

Week 4□219.3

219.3□0.1457

0.1457□

□Week 5

Week 5□225.5

225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□ 1.0385□□Week 8□2312.2□1864□ □Week 8□2312.2□1864□ Week 8□2312.2□1864□ 2312.2□1864□1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 1864□1.2369□□ 1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Total N□□Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	**□**
□NH_4^+	**NH_4^+□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
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877□0.5829□□Week
5□1506.7□1127□
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5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□I
mproved velvet□	1921.8□	1525□□L

ocal velvet□ 1833□1439□□LS D□35.09□55.5□
□**NH_4^+**□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
NH_4^+□**NO_3^-** □□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
NO_3^-□□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
□Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
Buffalo beans□ 1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□
1923.6□1525□□I mproved velvet□ 1921.8□1525□□L ocal velvet□ 1833□1439□□LS D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
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877□0.5829□□W
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633□0.4037□□W
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877□0.5829□□W
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877□0.5829□□W
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5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
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1188.2□
877□0.5829□□W
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877□0.5829□□W
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5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1833□1439□□LSD□35.09□55.5□ 1439□□LSD□35.09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55.5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5□□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□CV (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	NH_4^+□	NO_3^-□	Total N□□
Week 1□	310.9□	214□	0.1423□□		
Week 2□	613.8 □	430□	0.2759□□		
Week 3□	894.2□	633□	0.4037□□		
Week 4□	1188.2□				

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□	
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□	
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□	
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127
Total N		Week 1	310.9		
214	0.1423		Week 2		
613.8			430	0.2759	
Week 3			894.2		
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

		70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure	**Rate of mineralization**	**Rate of mineralization** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□**
	□Buffalo beans	Buffalo beans□ 301□232.8 301□232.8 232.8□
	□Improved velvet	Improved velvet□301.7 301.7□228.7 228.7□
	□Local velvet	Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
			NH_4^+	NO_3^-	Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423			
					0.1423		
Week 2	Week 2	214.9	214.9	0.138			
					0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^- □Total N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total N□□Week 1□
310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NO_3^-	
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□

Green manure	**Rate of mineralization□ NH_4^+**	**Rate of mineralization□ NO_3^-**
□Buffalo beans	Buffalo beans□ 301□232.8 301□232.8 232.8□	
□Improved velvet	Improved velvet□301.7 301.7□228.7 228.7□	
□Local velvet	Local velvet□282.5 282.5□216.4 216.4□	
□LSD	LSD□ 8.5 8.5□ 8.45□ 8.45□	
□CV (%)	CV (%)□ 7.1 7.1□ 9.2□ 9.2□	
□□□□□□ □□□□□ □□□□ □□□ □□ □		

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

N		Week 1	310.9	
214	0.1423		Week 2	
613.8			430	0.2759
	Week 3		894.2	
633	0.4037		Week 4	1188.2
877	0.5829		Week 5	1506.7
1127				
NH_4^+	**NO_3^-**	**Total**		
N		Week 1	310.9	
214	0.1423		Week 2	
613.8			430	0.2759
	Week 3		894.2	
633	0.4037		Week 4	1188.2
877	0.5829		Week 5	1506.7
1127				
NO_3^-	**Total**			
N		Week 1	310.9	
214	0.1423		Week 2	
613.8			430	0.2759
	Week 3		894.2	
633	0.4037		Week 4	1188.2
877	0.5829		Week 5	1506.7
1127				
Total N		Week 1	310.9	
214	0.1423		Week 2	
613.8			430	0.2759
	Week 3		894.2	
633	0.4037		Week 4	1188.2

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

	70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of mineralization□	**Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□**
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	
□Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□		
□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□		
Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□		
	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□		
	1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□		
	□Local velvet□	1833□1439□□LSD□35.09□55.5□		
	Local velvet□	1833□1439□□LSD□35.09□55.5□		
		1833□1439□□LSD□35.09□55.5□		
		1439□□LSD□35.09□55.5□□CV (%)□		
		4.6□		
		9.2□□		
		□LSD□35.09□55.5□□CV (%)□		
		4.6□		
		9.2□□		
		LSD□35.09□55.5		

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□**	
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	
□TIME		
TIME□NO_3^-	**NO_3^-□Total N**	**Total N□**
□Week 1		
Week 1□214.3		
214.3□		
0.1423□		
0.1423□		

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
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□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$

Buffalo beans
Buffalo beans
301 232.8
301 232.8
232.8

Improved velvet
Improved velvet 301.7
301.7 228.7
228.7

Local velvet
Local velvet 282.5
282.5 216.4
216.4

LSD
LSD 8.5
8.5
8.45
8.45

CV (%)
CV (%) 7.1
7.1
9.2
9.2

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization
Rate of mineralization

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423			
					0.1423		
Week 2	Week 2	214.9	214.9	0.138			
					0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□C V (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□ 4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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430□0.2759□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	
	□□NH_4^+	□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure	**Rate of mineralization□ Rate of mineralization□**
	□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**
□Buffalo beans	Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet	Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet	Local velvet□282.5 282.5□216.4 216.4□
□LSD	LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%)	CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□	
□□□□□	
□□□□	
□□□	
□□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	310.9□
214□0.1423□□	□Week 2□	613.8
□	430□0.2759□□	□Week 3□
894.2□	633□0.4037□□	□Week 4□
1188.2□	877□0.5829□□	□Week 5□
1506.7□	1127□	NH_4^+□NO_3^- □Total N□□
□Week 1□	310.9□	214□0.1423□□
□Week 2□	613.8	□
430□0.2759□□	□Week 3□	894.2□
633□0.4037□□	□Week 4□	1188.2□
877□0.5829□□	□Week 5□	1506.7□
1127□	NO_3^-□Total N□□	□Week 1□
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□CV (%)□ 4.6□ 9.2 □ 6.2□ □
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
			NO_3^-	
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□
1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□
□LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□
LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□
35.09□55.5□□C V (%)□ 4.6□ 9.2□□
55.5□□CV (%)□ 4.6□ 9.2□□
□CV (%)□ 4.6□ 9.2□□
CV (%)□ 4.6□ 9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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8□2312.2□1864□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□1.6368□□Week
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0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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0.05152□□CV
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□**	
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
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Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1	Week 1□214.3	214.3□	0.1423□		
			0.1423□		
□Week 2	Week 2□214.9	214.9□	0.138□		
			0.138□		
□Week 3	Week 3□211.2	211.2□0.1346	0.1346□		
□Week 4	Week 4□219.3	219.3□0.1457	0.1457□		
□Week 5	Week 5□225.5	225.5□0.1486			

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
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□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
			NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
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eek 4□1188.2□
877□0.5829□□W
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613.8 □
430□0.2759□□W
eek 3□
894.2□
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eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
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894.2□
633□0.4037□□W
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2□ 613.8
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633□0.4037□□W
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□Week 2□
613.8 □
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eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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7□2041.4□1603□
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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Week
9□2603.5□2105□
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□	Rate of mineralization□
□	□NH_4^+	NH_4^+□$N0_3^-$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7 228.7□
□Local velvet	Local velvet□282.5	282.5□216.4 216.4□
□LSD	LSD□ 8.5	8.5□ 8.45□
□CV (%)	CV (%)□ 7.1	7.1□ 9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	
□□	NH_4^+□	NO_3^- □	Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NH_4^+	**NO_3^-**	**Total**			
N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

NO_3^-	**Total**				
N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	
877	0.5829		Week 5	1506.7	1127

Total N		Week 1	310.9		
214	0.1423		Week 2	613.8	
430	0.2759		Week 3	894.2	
633	0.4037		Week 4	1188.2	

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
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5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
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8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
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1.42□□Week
10□2888.1□2340
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Week
10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
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□2.0702□□LSD□
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(%)□ 4.6□
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2340□1.6368□□
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
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(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		
				0.1423□	
□Week 2	Week 2□214.9	214.9□	0.138□		

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

| | | |

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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894.2□
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877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□			
□**NH_4^+**	**$NH_4^{+□}$**	**$N0_3^-$**	**$N0_3^{-□}$**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□	301.7	301.7□228.7
228.7□			
□Local velvet	Local velvet□	282.5	282.5□216.4
216.4□			
□LSD	LSD□	8.5	8.5□
8.45□			
8.45□			
□CV (%)	CV (%)□	7.1	7.1□
9.2□			
9.2□			
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	**NH_4^+□NO_3^-**	**NH_4^+□NO_3^-**
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□	
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□	
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
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11□3157.6□2577
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11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	**Cumulative mineralization**
Cumulative mineralization	**NH_4^+ NO_3^-**
Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
NH_4^+ NO_3^-	Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
NH_4^+ NO_3^-	Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
NO_3^- Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD 35.09 55.5
Buffalo beans	1923.6 1525 Improved velvet	1921.8 1525 Local velvet	1833 1439 LSD

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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70.17□110.9□
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(%)□ 4.6□
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans				

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□ □Week 1□
310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W
eek 4□1188.2□
877□0.5829□ □W
eek
5□1506.7□1127□
NO_3^-□Total
N□ □Week 1□
310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W
eek 4□1188.2□
877□0.5829□ □W
eek
5□1506.7□1127□
Total N□ □Week
1□ 310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W
eek 4□1188.2□
877□0.5829□ □W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□ □W
eek 2□
613.8 □
430□0.2759□ □W
eek 3□
894.2□
633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□				
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□				
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□				
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□				
□Local velvet Local velvet□282.5 282.5□216.4 216.4□				
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□				

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
	211.2□0.1346				
	0.1346□				
□Week 4					
Week 4□219.3					
	219.3□0.1457				
	0.1457□				
□Week 5					
Week 5□225.5					
	225.5□0.1486				
	0.1486□				
□Week 6					
Week 6□227.8					
	227.8□0.1455				
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
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894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
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5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
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4□1188.2□
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eek
5□1506.7□1127□
□Week

4□1188.2□
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Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
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877□0.5829□□Week
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877□0.5829□□Week
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5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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11□3157.6□2577
□1.8066□□Week

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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
NH_4^+					
NO_3^-					
Total N	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
NO_3^-					
Total N	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2	877	0.5829	
	Week 5	1506.7	1127		
Total N	Week 1	310.9	214	0.1423	
	Week 2	613.8	430	0.2759	
	Week 3	894.2	633	0.4037	
	Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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5□1506.7□1127□
□Week 2□
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894.2□
633□0.4037□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
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7□2041.4□1603□
Week
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2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
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894.2□
633□0.4037□□W
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0.4037□□Week
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877□0.5829□□W
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□Week
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Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
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70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
□NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□	
Improved velvet□	1921.8□1525□□	
Local velvet□	1833□1439□□	
LSD□35.09□55.5□		
NH_4^+□NO_3^-		
□□Buffalo beans□		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
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55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
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CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
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894.2□
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5□1506.7□1127□ Week 2□
613.8 □
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894.2□
633□0.4037□□Week 4□1188.2□
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□Week 3□
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894.2□
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877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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1864□1.2369□□
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9□2603.5□2105□
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066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□**NH_4^+**
NH_4^+□N0_3^-
N0_3^-□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+□NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-□Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species				
TIME	Cumulative mineralization		Cumulative mineralization	
	NH_4^+	NO_3^-	Total N	
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
	NH_4^+	NO_3^-	Total N	
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
	NH_4^+	NO_3^-	Total N	
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$	Rate of mineralization□ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
Week

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1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NH_4^+	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
NO_3^-		
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-	□□Buffalo beans□	1923.6□1525□□Improved velvet□
		1921.8□1525□□Local velvet□
		1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	□□Buffalo beans□	1923.6□1525□□Improved velvet□
		1921.8□1525□□Local velvet□
		1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□L SD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□

Rate of mineralization□

□TIME

TIME□NO_3^-

NO_3^-□Total N

Total N□

□Week 1

Week 1□214.3

214.3□

0.1423□

0.1423□

□Week 2

Week 2□214.9

214.9□

0.138□

0.138□

□Week 3

Week 3□211.2

211.2□0.1346

0.1346□

□Week 4

Week 4□219.3

219.3□0.1457

0.1457□

□Week 5

Week 5□225.5

225.5□0.1486

0.1486□

□Week 6

Week 6□227.8

227.8□0.1455

0.1455□

□Week 7

Week 7□

229□0.1484

229□0.1484

0.1484□

□Week 8

Week 8□

233□0.1546

233□0.1546

0.1546□

□Week 9

Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□ □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□ LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□ 35.09□55.5□□C V (%)□ 4.6□ 9.2□□ 55.5□□CV (%)□ 4.6□ 9.2□□ □CV (%)□ 4.6□ 9.2□□ CV (%)□ 4.6□ 9.2□□ 4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
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613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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894.2□
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430□0.2759□□W
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633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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eek 4□1188.2□
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□Week 3□
894.2□
633□0.4037□□W
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Week 3□
894.2□
633□0.4037□□W
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1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
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1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
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Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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1.42□□Week
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(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**			
□TIME	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**	
□Week 1				
Week 1□214.3				
214.3□				
0.1423□				
0.1423□				

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□
Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N	Week 1	310.9	214	0.1423	Week 2
613.8		430	0.2759	Week 3	894.2
633	0.4037	Week 4	1188.2	877	0.5829
Week 5	1506.7	1127			
NH_4^+	**NO_3^-**	**Total**			
N	Week 1	310.9	214	0.1423	Week 2
613.8		430	0.2759	Week 3	894.2
633	0.4037	Week 4	1188.2	877	0.5829
Week 5	1506.7	1127			
NO_3^-	**Total**				
N	Week 1	310.9	214	0.1423	Week 2
613.8		430	0.2759	Week 3	894.2
633	0.4037	Week 4	1188.2	877	0.5829
Week 5	1506.7	1127			
Total N	Week 1	310.9	214	0.1423	Week 2
613.8		430	0.2759	Week 3	894.2
633	0.4037	Week 4	1188.2		

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

| | | |

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□ □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□CV (%)□ 4.6□ 9.2 □ 6.2□ □
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□ 1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□   □LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□   LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□   35.09□55.5□□C V (%)□ 4.6□ 9.2□□   55.5□□CV (%)□ 4.6□ 9.2□□   □CV (%)□ 4.6□ 9.2□□   CV (%)□ 4.6□ 9.2□□   4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □				
Green manure	**□Rate of mineralization□ □NH$_4^+$**	**Rate of mineralization□ NH$_4^+$□N0$_3^-$**	**□ N0$_3^-$□**		
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□		
□Improved velvet	Improved velvet□301.7	301.7□228.7			

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
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(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
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□1.6368□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
613.8
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430□0.2759□□W
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633□0.4037□□W
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5□1506.7□1127□

430□0.2759□□W
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877□0.5829□□W
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5□1506.7□1127□
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
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877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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□1.8066□□Week
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(%)□ 4.6□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	Rate of mineralization□ $N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□				

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□
L		

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3			214.3		0.1423	
						0.1423	
Week 2							
Week 2	214.9			214.9		0.138	
						0.138	
Week 3							
Week 3	211.2			211.2	0.1346		
						0.1346	
Week 4							
Week 4	219.3			219.3	0.1457		
						0.1457	
Week 5							
Week 5	225.5			225.5	0.1486		
						0.1486	
Week 6							
Week 6	227.8			227.8	0.1455		

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

**mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NH_4^+□NO_3^- □Total N□□Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ NO_3^-□Total N□□Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NO_3^-	
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
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11□3157.6□2577

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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1.42□□Week
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11□3157.6□2577
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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0.05152□□CV
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
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Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species				
TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
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310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
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894.2□
633□0.4037□□W
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894.2□
633□0.4037□□W
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□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
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633□0.4037□□W
eek 4□1188.2□
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877□0.5829□□W
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
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1864□1.2369□□
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(%)□ 4.6□
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6.2□□
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□□□NH_4^+□NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo				

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization
Cumulative mineralization
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NH_4^+
NO_3^-
Total N
Week 1
310.9
214
0.1423
Week 2
613.8
430
0.2759
Week 3
894.2
633
0.4037
Week 4
1188.2
877
0.5829
Week 5
1506.7
1127
NO_3^-
Total N
Week 1
310.9
214
0.1423
W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□ □Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□ □Week
9□2603.5□2105□
1.42□ □Week
10□2888.1□2340
□1.6368□ □Week
11□3157.6□2577
□1.8066□ □Week
12□3428.6□2816
□2.0702□ □LSD□
70.17□110.9□
0.05152□ □CV
(%)□ 4.6□
9.2 □
6.2□ □
1864□1.2369□ □
1.2369□ □Week
9□2603.5□2105□
1.42□ □Week
10□2888.1□2340
□1.6368□ □Week
11□3157.6□2577
□1.8066□ □Week
12□3428.6□2816
□2.0702□ □LSD□
70.17□110.9□
0.05152□ □CV
(%)□ 4.6□
9.2 □
6.2□ □
□Week
9□2603.5□2105□
1.42□ □Week
10□2888.1□2340
□1.6368□ □Week
11□3157.6□2577
□1.8066□ □Week
12□3428.6□2816
□2.0702□ □LSD□
70.17□110.9□
0.05152□ □CV
(%)□ 4.6□
9.2 □
6.2□ □
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□CV (%)□ 4.6□ 9.2 □ 6.2□ □
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□

□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NH_4^+□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

NO_3^-□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□

Total N□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
0.1423□□Week 2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
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8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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11□3157.6□2577
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
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□2.0702□□LSD□
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2816□2.0702□□L
SD□
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0.05152□□CV
(%)□ 4.6□
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□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
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Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
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894.2□
633□0.4037□□W
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0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□
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0.2759□□Week
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633□0.4037□□W
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877□0.5829□□W
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□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
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2041.4□1603□1.0
385□□Week
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1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
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(%)□ 4.6□
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□1.8066□□Week
12□3428.6□2816

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70.17□110.9□
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(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□

Green manure□Rate of mineralization□	Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	
□Local velvet Local velvet□282.5 282.5□216.4 216.4□	
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□	
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□	
□□□□□□ □□□□□ □□□□ □□□ □□ □	

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486
0.1486□	
□Week 6	
Week 6□227.8	227.8□0.1455
0.1455□	
□Week 7	
Week 7□	
229□0.1484	
229□0.1484	
0.1484□	
□Week 8	

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo			

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
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0.05152□□CV
(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
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12□3428.6□2816
□2.0702□□LSD□
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(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□			
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□			
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□			
□Local velvet Local velvet□282.5 282.5□216.4 216.4□			

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	
214	0.1423	
Week 2	613.8	
430	0.2759	
Week 3	894.2	
633	0.4037	
Week 4	1188.2	
877	0.5829	
Week 5	1506.7	
1127		

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-	□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□
214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
0.1423		
Week 2	613.8	430
0.2759		
Week 3	894.2	633
0.4037		
Week 4	1188.2	877
0.5829		
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ NO_3^-	Rate of mineralization□ NO_3^-□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$

Buffalo beans

Buffalo beans 301 232.8

301 232.8

232.8

Improved velvet

Improved velvet 301.7

301.7 228.7

228.7

Local velvet

Local velvet 282.5

282.5 216.4

216.4

LSD

LSD 8.5

8.5

8.45

8.45

CV (%)

CV (%) 7.1

7.1

9.2

9.2

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization

Rate of mineralization

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
Cumulative mineralization	
Cumulative mineralization	
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
NH_4^+ NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
NO_3^-	Buffalo beans
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	35.09
Buffalo beans	
1923.6	1525
mproved velvet	
1921.8	1525
ocal velvet	
1833	1439
LSD	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N		Week 1		310.9					
214	0.1423		Week 2						
613.8									
430	0.2759		Week 3						
894.2									
633	0.4037		Week 4	1188.2					
877	0.5829		Week 5	1506.7	1127				
NH_4^+	**NO_3^-**	**Total**							
N		Week 1		310.9					
214	0.1423		Week 2						
613.8									
430	0.2759		Week 3						
894.2									
633	0.4037		Week 4	1188.2					
877	0.5829		Week 5	1506.7	1127				
NO_3^-	**Total**								
N		Week 1		310.9					
214	0.1423		Week 2						
613.8									
430	0.2759		Week 3						
894.2									
633	0.4037		Week 4	1188.2					
877	0.5829		Week 5	1506.7	1127				
Total	**N**		Week 1	310.9					
214	0.1423		Week 2						
613.8									
430	0.2759		Week 3						
894.2									
633	0.4037		Week 4	1188.2					

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□
0.1423□□Week
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633□0.4037□□W
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5□1506.7□1127□
□Week 2□
613.8 □
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5□1506.7□1127□
Week 2□
613.8 □
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5□1506.7□1127□
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633□0.4037□□W
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430□0.2759□□W
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0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

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1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
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369□□Week
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9.2 □

6.2□□
1864□1.2369□□
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□		
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□		
□Local velvet Local velvet□282.5 282.5□216.4 216.4□		

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□NH_4^+□NO_3^-	□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
□CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□
Rate of mineralization□
□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□ 1833□1439□□LS D□35.09□55.5□
1833□1439□□LS D□35.09□55.5□ 1439□□LSD□35. 09□55.5□□CV (%)□ 4.6□ 9.2□□
□LSD□35.09□55. 5□□CV (%)□ 4.6□ 9.2□□
LSD□35.09□55.5 □□CV (%)□ 4.6□ 9.2□□
35.09□55.5□□C V (%)□ 4.6□ 9.2□□
55.5□□CV (%)□ 4.6□ 9.2□□
□CV (%)□ 4.6□ 9.2□□
CV (%)□ 4.6□ 9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure□Rate of mineralization□	**Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**		
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7			

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^+□$N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
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5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$

Buffalo beans
Buffalo beans
301 232.8
301 232.8
232.8

Improved velvet
Improved velvet 301.7
301.7 228.7
228.7

Local velvet
Local velvet 282.5
282.5 216.4
216.4

LSD
LSD 8.5
8.5
8.45
8.45

CV (%)
CV (%) 7.1
7.1
9.2
9.2

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization
Rate of mineralization

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□**	
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

| | | |

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ □**NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3					214.3	0.1423
							0.1423
Week 2							
Week 2	214.9					214.9	0.138
							0.138
Week 3							
Week 3	211.2					211.2	0.1346
							0.1346
Week 4							
Week 4	219.3					219.3	0.1457
							0.1457
Week 5							
Week 5	225.5					225.5	0.1486
							0.1486
Week 6							
Week 6	227.8					227.8	0.1455

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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(%)□ 4.6□
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10□2888.1□2340
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(%)□ 4.6□
9.2 □
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Week
10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

	0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □		
Green manure	**□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7	

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week					

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□					
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□					
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□					
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□					
□Local velvet Local velvet□282.5 282.5□216.4 216.4□					
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□					
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□					

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1	Week 1□214.3	214.3□	0.1423□		
			0.1423□		
□Week 2	Week 2□214.9	214.9□	0.138□		
			0.138□		
□Week 3	Week 3□211.2	211.2□0.1346	0.1346□		
□Week 4	Week 4□219.3	219.3□0.1457	0.1457□		
□Week 5	Week 5□225.5	225.5□0.1486			

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□	1833□	1439□□
LSD□	35.09□	55.5□
□	NH_4^+□	NO_3^-
□□Buffalo beans□	1923.6□	1525□□
Improved velvet□	1921.8□	1525□□
Local velvet□		

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
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D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species				
TIME	Cumulative mineralization	Cumulative mineralization		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2	877	0.5829	
Week 5	1506.7	1127		
		NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423	
Week 2	613.8	430	0.2759	
Week 3	894.2	633	0.4037	
Week 4	1188.2			

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					
0.1486□					
□Week 6					
Week 6□227.8					
227.8□0.1455					
0.1455□					
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
0.1484□					
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

| | | |

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□	310.9□	214□0.1423□	□W		
eek 2□	613.8	□			
430□0.2759□	□W				
eek 3□	894.2□				
633□0.4037□	□W				
eek 4□1188.2□					
877□0.5829□	□W				
eek					
5□1506.7□1127□					
NO_3^-□Total					
N□ □Week 1□	310.9□	214□0.1423□	□W		
eek 2□	613.8	□			
430□0.2759□	□W				
eek 3□	894.2□				
633□0.4037□	□W				
eek 4□1188.2□					
877□0.5829□	□W				
eek					
5□1506.7□1127□					
Total N□ □Week					
1□	310.9□	214□0.1423□	□W		
eek 2□	613.8	□			
430□0.2759□	□W				
eek 3□	894.2□				
633□0.4037□	□W				
eek 4□1188.2□					
877□0.5829□	□W				
eek					
5□1506.7□1127□					
□Week 1□	310.9□	214□0.1423□	□W		
eek 2□	613.8	□			
430□0.2759□	□W				
eek 3□	894.2□				
633□0.4037□	□W				
eek 4□1188.2□					
877□0.5829□	□W				
eek					

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure	**Rate of mineralization□ Rate of mineralization□**
	□ □**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**
□Buffalo beans	Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet	Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet	Local velvet□282.5 282.5□216.4 216.4□
□LSD	LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%)	CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□	
□□□□□	
□□□□	
□□□	
□□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	310.9□
214□0.1423□□	□Week 2□	613.8
□	430□0.2759□□	□Week 3□
894.2□	633□0.4037□□	□Week 4□
1188.2□	877□0.5829□□	□Week 5□
1506.7□	1127□	NH_4^+□NO_3^- □Total N□□
□Week 1□	310.9□	214□0.1423□□
□Week 2□	613.8	□
430□0.2759□□	□Week 3□	894.2□
633□0.4037□□	□Week 4□	1188.2□
877□0.5829□□	□Week 5□	1506.7□
1127□	NO_3^-□Total N□□	□Week 1□
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
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633□0.4037□□W
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430□0.2759□□W
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894.2□
633□0.4037□□W
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877□0.5829□□W
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0.2759□□Week
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633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
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877□0.5829□□W
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894.2□
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877□0.5829□□W
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633□0.4037□□W
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877□0.5829□□W
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0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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Week

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□1.6368□□Week
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(%)□ 4.6□
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□2.0702□□LSD□
70.17□110.9□
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(%)□ 4.6□
9.2 □
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^-

□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□

NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

| | | |

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□
□□	**NH_4^+□NO_3^-**	**NH_4^+□NO_3^-**
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□	**NH_4^+□NO_3^-**	**NH_4^+□NO_3^-**
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^-		
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□TIME
TIME□NO_3^-
NO_3^-□Total N
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□ 9.2□
8.1□ 8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization□□ □□NH$_4^+$**	**Cumulative mineralization□□ □□NO$_3^-$**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N			
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week
5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week 3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□
Rate of mineralization□
□
□**NH_4^+**
NH_4^+□$N0_3^-$
$N0_3^-$□
□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□
□Improved velvet
Improved
velvet□301.7
301.7□228.7
228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NH_4^+ NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
		NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
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□1.6368□□Week
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□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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70.17□110.9□
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(%)□ 4.6□
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6.2□□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□ 1.0385□□Week 8□2312.2□1864□ □Week 8□2312.2□1864□ Week 8□2312.2□1864□ 2312.2□1864□1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 1864□1.2369□□ 1.2369□□Week 9□2603.5□2105□ 1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
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70.17□110.9□
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9□2603.5□2105□
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10□2888.1□2340
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1.42□□Week
10□2888.1□2340
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11□3157.6□2577
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70.17□110.9□
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9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
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12□3428.6□2816
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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SD□
70.17□110.9□
0.05152□□CV
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□N0$_3^-$** **N0$_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
**NO_3^-□Total
N□□**Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□			
□**NH_4^+**	**NH_4^{+}□**	**$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8 232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□	8.5	8.5□
8.45□			8.45□
□CV (%)	CV (%)□	7.1	7.1□
9.2□			9.2□
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□	
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□	
□Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□

NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek 5□1506.7□1127□

□Week 1□ 310.9□ 214□0.1423□ □W eek 2□ 613.8 □ 430□0.2759□ □W eek 3□ 894.2□ 633□0.4037□ □W eek 4□1188.2□ 877□0.5829□ □W eek

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□
1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6 368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□
0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□ □□□□ □□□ □□	

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423			
					0.1423		
Week 2	Week 2	214.9	214.9	0.138			
					0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□310.9□214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

| | | |

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**
□TIME	
TIME□NO_3^-	**NO_3^-□Total N**
Total N□	
□Week 1	
Week 1□214.3	
214.3□	
0.1423□	
0.1423□	

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□
□TIME	TIME□NO_3^-
NO_3^-□Total N	Total N□
□Week 1	
Week 1□214.3	214.3□
0.1423□	
0.1423□	
□Week 2	
Week 2□214.9	214.9□
0.138□	
0.138□	
□Week 3	
Week 3□211.2	211.2□0.1346
0.1346□	
□Week 4	
Week 4□219.3	219.3□0.1457
0.1457□	
□Week 5	
Week 5□225.5	225.5□0.1486

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
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430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2816□2.0702□□L
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ $NH_4^{+□}$ $N0_3^-$	$N0_3^{-□}$
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
				0.1423□	
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
				0.138□	
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
				229□0.1484	
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□
1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□
35.09□55.5□□CV (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□**
	□□NH_4^+	**□NO_3^-**	**□Total N□□**
Week 1□			

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127		NH_4^+	NO_3^- Total

| | | |

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

877□0.5829□□W
eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□

Rate of mineralization□

□

□**NH_4^+**

NH_4^+□$N0_3^-$

$N0_3^-$□

□Buffalo beans

Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet

Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet

Local velvet□282.5
282.5□216.4
216.4□

□LSD

LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)

CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1							
Week 1	214.3						
	214.3						
0.1423							
0.1423							
Week 2							
Week 2	214.9						
	214.9						
0.138							
0.138							
Week 3							
Week 3	211.2						
	211.2	0.1346					
	0.1346						
Week 4							
Week 4	219.3						
	219.3	0.1457					
	0.1457						
Week 5							
Week 5	225.5						
	225.5	0.1486					
	0.1486						
Week 6							
Week 6	227.8						
	227.8	0.1455					

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
□NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NH_4^+□NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□
NO_3^-□Total N□□
Week 1□ 310.9□ 214□0.1423□□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of

green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
229□0.1484					
	0.1484□				
□Week 8					
Week 8□					
233□0.1546					
233□0.1546					
	0.1546□				
□Week 9					
Week 9□233.9					

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NH_4^+				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		
NO_3^-				
Buffalo beans	1923.6	1525		
Improved velvet	1921.8	1525		
Local velvet	1833	1439		
LSD	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□0.1423□□	
Week 2□	613.8 □	430□0.2759□□	
Week 3□	894.2□	633□0.4037□□	
Week 4□	1188.2□		

877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+□NO_3^-**
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□NO_3^-
□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□ □Week 11□3157.6□2577
□1.8066□ □Week 12□3428.6□2816
□2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2888.1□2340□1.6 368□ □Week 11□3157.6□2577
□1.8066□ □Week 12□3428.6□2816
□2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
2340□1.6368□ □ 1.6368□ □Week 11□3157.6□2577
□1.8066□ □Week 12□3428.6□2816
□2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
□Week 11□3157.6□2577
□1.8066□ □Week 12□3428.6□2816
□2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □
Week 11□3157.6□2577
□1.8066□ □Week 12□3428.6□2816
□2.0702□ □LSD□ 70.17□110.9□
0.05152□ □CV (%)□ 4.6□ 9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure
□Cumulative mineralization□□
Cumulative mineralization□□
□□NH_4^+□NO_3^-
□□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
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□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□			
Green manure□Rate of mineralization□ Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□		

□□□□
□□□
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□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
214.3□					
0.1423□					
0.1423□					
□Week 2					
Week 2□214.9					
214.9□					
0.138□					
0.138□					
□Week 3					
Week 3□211.2					
211.2□0.1346					
0.1346□					
□Week 4					
Week 4□219.3					
219.3□0.1457					
0.1457□					
□Week 5					
Week 5□225.5					
225.5□0.1486					

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□Week 5□1506.7□1127□ **NO_3^-□Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ **Total N□□**Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ □Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□ Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
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877□0.5829□□W
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5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
894.2□
633□0.4037□□W
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
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Week
9□2603.5□2105□
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10□2888.1□2340
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70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
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□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□	Rate of mineralization□ NH_4^+	Rate of mineralization□ NH_4^{+}□ $N0_3^-$	Rate of mineralization□ $N0_3^-$□
□Buffalo beans	Buffalo beans□ 301□232.8	301□232.8	232.8□
□Improved velvet	Improved velvet□301.7	301.7□228.7	228.7□
□Local velvet	Local velvet□282.5	282.5□216.4	216.4□
□LSD	LSD□ 8.5	8.5□	8.45□
□CV (%)	CV (%)□ 7.1	7.1□	9.2□

□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
□NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NH_4^+□NO_3^- □□Buffalo beans□	1923.6□1525□□Improved velvet□	1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□		
NO_3^-□□Buffalo		

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□**	**□□NH_4^+**	**□NO_3^-**	**□Total N□□**
Week 1□					

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

2816□2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^{+}□$N0_3^-$**	

$N0_3^{-}$□
□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□
□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□
□Local velvet Local velvet□282.5 282.5□216.4 216.4□
□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□
□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□
□□□□□□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□

□**TIME**
TIME□**NO_3^-**
NO_3^-□**Total N**
Total N□
□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637

0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of

green manure species	
Green manure	
□Cumulative mineralization□□	
Cumulative mineralization□□	
□□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NH_4^+□NO_3^-	
□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
NO_3^-□□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LSD□35.09□55.5□	
□Buffalo beans□	
1923.6□1525□□Improved velvet□	
1921.8□1525□□Local velvet□	
1833□1439□□LS	

D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□

1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NH_4^+□NO_3^- □Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

NO_3^-□Total

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□

Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□

877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek

5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week

3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 894.2□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 633□0.4037□□W eek 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 1188.2□ 877□0.5829□□W eek 5□1506.7□1127□ 877□0.5829□□W

eek
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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Week
9□2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
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70.17□110.9□
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(%)□ 4.6□
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2603.5□2105□
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10□2888.1□2340
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11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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70.17□110.9□
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(%)□ 4.6□
9.2 □
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70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□

		70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□
Green manure□Rate of mineralization□	**Rate of mineralization□ □ □NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**	□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□	

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□ Rate of mineralization□ □TIME TIME□NO_3^- NO_3^-□Total N Total N□
□Week 1 Week 1□214.3 214.3□ 0.1423□
0.1423□
□Week 2 Week 2□214.9 214.9□ 0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□

8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □	**Cumulative mineralization**□□	**Cumulative mineralization**□□ □□**NH_4^+**□**NO_3^-**
□□Buffalo beans□	1923.6□	1525□□
□Improved velvet□	1921.8□	1525□□

ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5

□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization

rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week 5	1506.7	1127

N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week

5□1506.7□1127□ Week 1□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 310.9□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week

6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□

0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

1.42□□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

□Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□

2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □

6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week

12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□CV (%)□
4.6□ 9.2
□ 6.2□□

Green manure□Rate of mineralization□ Rate of mineralization□

□
□**NH_4^+ NH_4^+□$N0_3^-$ $N0_3^-$□**

□Buffalo beans
Buffalo beans□
301□232.8
301□232.8
232.8□

□Improved velvet
Improved velvet□301.7
301.7□228.7
228.7□

□Local velvet
Local velvet□282.5
282.5□216.4
216.4□

□LSD
LSD□ 8.5
8.5□
8.45□
8.45□

□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□

□□□□□□
□□□□□
□□□□
□□□
□□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

Rate of mineralization	Rate of mineralization	TIME	TIME	NO_3^-	NO_3^-	Total N	Total N
Week 1	Week 1	214.3	214.3	0.1423	0.1423		
Week 2	Week 2	214.9	214.9	0.138	0.138		
Week 3	Week 3	211.2	211.2	0.1346	0.1346		
Week 4	Week 4	219.3	219.3	0.1457	0.1457		
Week 5	Week 5	225.5	225.5	0.1486	0.1486		
Week 6	Week 6	227.8	227.8	0.1455			

0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525
Improved velvet	1921.8	1525
Local velvet	1833	1439
LSD	35.09	55.5
	NH_4^+	NO_3^-
Buffalo beans		

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ NO_3^-□□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□

1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□Cumulative

mineralization□□ Cumulative mineralization□□	□□NH_4^+□NO_3^- □Total N□□	□Week 1□
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
□NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NH_4^+□NO_3^- □Total N□□	□Week 1□	
310.9□	214□0.1423□□	□Week 2□
613.8	□	430□0.2759□□
□Week 3□	894.2□	633□0.4037□□
□Week 4□	1188.2□	877□0.5829□□
□Week 5□	1506.7□	1127□
NO_3^-□Total N□□	□Week 1□	
310.9□	214□0.1423□□	□W

eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□

613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week 2□ 613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ □Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□ Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week 7□2041.4□1603□ Week 7□2041.4□1603□ 2041.4□1603□1.0385□□Week 8□2312.2□1864□ 1603□1.0385□□

1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week

9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0

702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2816□2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
2.0702□ □LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
LSD□ 70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
70.17□110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
110.9□ 0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
0.05152□ □CV (%)□ 4.6□ 9.2 □ 6.2□ □	
□CV (%)□ 4.6□ 9.2 □ 6.2□ □	
Green manure□Rate of	

mineralization□ Rate of mineralization□ □ □NH$_4^+$ NH$_4^+$□N0$_3^-$ N0$_3^-$□

□Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□

□Improved velvet Improved velvet□301.7 301.7□228.7 228.7□

□Local velvet Local velvet□282.5 282.5□216.4 216.4□

□LSD LSD□ 8.5 8.5□ 8.45□ 8.45□

□CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□

□□□□□□ □□□□□ □□□□ □□□ □□ □

Table 6: The mineralization rate of NO$_3^-$ and total N of the laboratory incubated biomass of

green manure

□**Rate of mineralization**□ **Rate of mineralization**□ □**TIME** **TIME**□**NO_3^-** **NO_3^-**□**Total N** **Total N**□

□Week 1
Week 1□214.3
214.3□
0.1423□

0.1423□
□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9

233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+

and NO_3^- of the laboratory incubated biomass of green manure species

Green manure	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NH_4^+	NO_3^-			
Buffalo beans	1923.6	1525	I	
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		
NO_3^-	Buffalo beans	1923.6	1525	I
mproved velvet	1921.8	1525	L	
ocal velvet	1833	1439	LS	
D	35.09	55.5		

□Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Buffalo beans□ 1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1923.6□1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ Improved velvet□ 1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ 1525□□Local velvet□ 1833□1439□□LSD□35.09□55.5□ □Local velvet□ 1833□1439□□LSD□35.09□55.5□

Local velvet□
1833□1439□□LS
D□35.09□55.5□
1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□
□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□
LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□
35.09□55.5□□C
V (%)□
4.6□
9.2□□
55.5□□CV (%)□
4.6□
9.2□□
□CV (%)□
4.6□
9.2□□
CV (%)□
4.6□
9.2□□
4.6□

9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	Cumulative mineralization□□	Cumulative mineralization□□	□□NH_4^+□NO_3^-	□Total N□□
Week 1□	310.9□	214□	0.1423□□	
Week 2□	613.8 □	430□	0.2759□□	
Week 3□	894.2□	633□	0.4037□□	
Week 4□	1188.2□			

877□0.5829□□Week 5□1506.7□1127□□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NH_4^+**□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**NO_3^-**□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□430□0.2759□□Week 3□894.2□633□0.4037□□Week 4□1188.2□877□0.5829□□Week 5□1506.7□1127□**Total N**□□Week 1□310.9□214□0.1423□□Week 2□613.8□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□

894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□

877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week

10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340

□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□

| | | |

228.7□
□Local velvet
Local velvet□282.5
282.5□216.4
216.4□
□LSD
LSD□ 8.5
8.5□
8.45□
8.45□
□CV (%)
CV (%)□ 7.1
7.1□
9.2□
9.2□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	**Rate of mineralization□**	**□TIME**	**TIME□NO_3^-**	**NO_3^-□Total N**	**Total N□**
□Week 1	Week 1□214.3	214.3□	0.1423□		0.1423□

□Week 2
Week 2□214.9
214.9□
0.138□

0.138□
□Week 3
Week 3□211.2
211.2□0.1346
0.1346□
□Week 4
Week 4□219.3
219.3□0.1457
0.1457□
□Week 5
Week 5□225.5
225.5□0.1486
0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89

16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□ Cumulative mineralization□□ □□NH_4^+□NO_3^- □□Buffalo

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
Improved velvet□
1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□

1921.8□1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The

cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
Week 1	310.9	214	0.1423		
Week 2	613.8	430	0.2759		
Week 3	894.2	633	0.4037		
Week 4	1188.2	877	0.5829		
Week 5	1506.7	1127			

NH_4^+	NO_3^-	Total N
Week 1	310.9	214
Week 2	613.8	430
Week 3	894.2	633
Week 4	1188.2	877
Week		

5□1506.7□1127□
NH_4^+□NO_3^- □Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
NO_3^-□Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
Total N□ □Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □Week 4□1188.2□ 877□0.5829□ □Week 5□1506.7□1127□
□Week 1□ 310.9□ 214□0.1423□ □Week 2□ 613.8 □ 430□0.2759□ □Week 3□ 894.2□ 633□0.4037□ □W

eek 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
310.9□
214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

214□0.1423□□Week 2□
613.8 □
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□Week 3□
894.2□
633□0.4037□□Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□

□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week

5□1506.7□1127□ Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□

0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
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6.2□□
2603.5□2105□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
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10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2888.1□2340□1.6
368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2340□1.6368□□
1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □CV (%)□ 4.6□ 9.2 □ 6.2□□	
Green manure□Rate of mineralization□ **Rate of mineralization□** □ **□NH_4^+** **NH_4^+□$N0_3^-$** **$N0_3^-$□** □Buffalo beans Buffalo beans□ 301□232.8 301□232.8 232.8□ □Improved velvet Improved velvet□301.7 301.7□228.7 228.7□ □Local velvet Local velvet□282.5 282.5□216.4 216.4□ □LSD LSD□ 8.5 8.5□ 8.45□ 8.45□ □CV (%) CV (%)□ 7.1 7.1□ 9.2□ 9.2□ □□□□□□ □□□□□	

□□□□
□□□
□□
□

Table 6: The mineralization rate of NO_3^- and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1				
Week 1□214.3	214.3□	0.1423□		
		0.1423□		
□Week 2				
Week 2□214.9	214.9□	0.138□		
		0.138□		
□Week 3				
Week 3□211.2	211.2□0.1346	0.1346□		
□Week 4				
Week 4□219.3	219.3□0.1457	0.1457□		
□Week 5				
Week 5□225.5	225.5□0.1486			

0.1486□
□Week 6
Week 6□227.8
227.8□0.1455
0.1455□
□Week 7
Week 7□
229□0.1484

229□0.1484
0.1484□
□Week 8
Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	

1833□1439□□LS
D□35.09□55.5□
NH_4^+□NO_3^-
□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
NO_3^-□□Buffalo
beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□

1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Local
velvet□
1833□1439□□LS
D□35.09□55.5□
□Local velvet□
1833□1439□□LS
D□35.09□55.5□
Local velvet□
1833□1439□□LS
D□35.09□55.5□

1833□1439□□LS
D□35.09□55.5□
1439□□LSD□35.
09□55.5□□CV
(%)□
4.6□
9.2□□

□LSD□35.09□55.
5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5
□□CV (%)□
4.6□
9.2□□

35.09□55.5□□C
V (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of

green manure species	TIME	Cumulative mineralization	Cumulative mineralization	NH_4^+	NO_3^-	Total N
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2	877	0.5829		
	Week 5	1506.7	1127			
NH_4^+	NO_3^-	Total N				
	Week 1	310.9	214	0.1423		
	Week 2	613.8	430	0.2759		
	Week 3	894.2	633	0.4037		
	Week 4	1188.2				

877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□Total
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
0.1423□□Week
2□ 613.8
□
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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5□1506.7□1127□
□Week 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
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Week 2□
613.8 □
430□0.2759□□W

eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
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5□1506.7□1127□

633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 1188.2□ 877□0.5829□□Week 5□1506.7□1127□

877□0.5829□□Week 5□1506.7□1127□ 0.5829□□Week 5□1506.7□1127□ □Week 5□1506.7□1127□ Week 5□1506.7□1127□ 1506.7□1127□0.7428□□Week 6□1768.4□1367□ 1127□0.7428□□ 0.7428□□Week 6□1768.4□1367□ □Week 6□1768.4□1367□ Week 6□1768.4□1367□ 1768.4□1367□0.8729□□Week 7□2041.4□1603□ 1367□0.8729□□ 0.8729□□Week 7□2041.4□1603□ □Week

7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□
2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
1864□1.2369□□
1.2369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577

□1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ □Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ Week 10□2888.1□2340 □1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2888.1□2340□1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV (%)□ 4.6□ 9.2 □ 6.2□□ 2340□1.6368□□ 1.6368□□Week 11□3157.6□2577 □1.8066□□Week 12□3428.6□2816 □2.0702□□LSD□ 70.17□110.9□ 0.05152□□CV

(%)□ 4.6□
9.2 □
6.2□□
□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3157.6□2577□1.8
066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2577□1.8066□□
1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
Week
12□3428.6□2816

□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
3428.6□2816□2.0
702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2816□2.0702□□L
SD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□

70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
6.2□□
0.05152□□CV
(%)□ 4.6□
9.2 □

6.2□□			
□CV (%)□			
4.6□	9.2		
□	6.2□□		
Green manure□	**Rate of mineralization□**	**Rate of mineralization□**	
□	**□NH_4^+**	**NH_4^+□$N0_3^-$**	**$N0_3^-$□**
□Buffalo beans	Buffalo beans□	301□232.8	301□232.8
232.8□			
□Improved velvet	Improved velvet□301.7	301.7□228.7	
228.7□			
□Local velvet	Local velvet□282.5	282.5□216.4	
216.4□			
□LSD	LSD□	8.5	
8.5□			
8.45□			
8.45□			
□CV (%)			
CV (%)□	7.1		
7.1□			
9.2□			
9.2□			
□□□□□□			
□□□□□			
□□□□			
□□□			
□□			
□			

Table 6: The mineralization rate of NO_3^-

and total N of the laboratory incubated biomass of green manure

□Rate of mineralization□	Rate of mineralization□	□TIME	TIME□NO_3^-	NO_3^-□Total N	Total N□
□Week 1					
Week 1□214.3					
	214.3□				
0.1423□					
	0.1423□				
□Week 2					
Week 2□214.9					
	214.9□				
0.138□					
	0.138□				
□Week 3					
Week 3□211.2					
211.2□0.1346					
	0.1346□				
□Week 4					
Week 4□219.3					
219.3□0.1457					
	0.1457□				
□Week 5					
Week 5□225.5					
225.5□0.1486					
	0.1486□				
□Week 6					
Week 6□227.8					
227.8□0.1455					
	0.1455□				
□Week 7					
Week 7□					
229□0.1484					
	229□0.1484				
	0.1484□				
□Week 8					

Week 8□
233□0.1546

233□0.1546
0.1546□
□Week 9
Week 9□233.9
233.9□0.1578
0.1578□
□Week 10
Week 10□
234□0.1637

234□0.1637
0.1637□
□Week 11
Week 11□234.3
234.3□0.1642
0.1642□
□Week 12
Week 12□234.7
234.7□0.1725
0.1725□
□LSD
LSD□16.89
16.89□ 0.00988
0.00988□
□CV (%)
CV (%)□
9.2□
8.1□
9.2□
8.1□
8.1□
□□□□□□
□□□□□
□□□□
□□□
□□
□

Table 7: The cumulative mineralization rate of NH_4^+ and NO_3^- of the laboratory incubated biomass of green manure species

Green manure □Cumulative mineralization□□	Cumulative mineralization□□ □□NH_4^+□NO_3^-
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
□NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NH_4^+□NO_3^-	
□□Buffalo beans□	1923.6□1525□□Improved velvet□
1921.8□1525□□Local velvet□	1833□1439□□LSD□35.09□55.5□
NO_3^-□□Buffalo	

beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Buffalo beans□
1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1923.6□1525□□I
mproved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
1525□□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
□Improved
velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□
Improved velvet□
1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1921.8□1525□□L
ocal velvet□
1833□1439□□LS
D□35.09□55.5□

1525□□Local velvet□
1833□1439□□LSD□35.09□55.5□
□Local velvet□
1833□1439□□LSD□35.09□55.5□
Local velvet□
1833□1439□□LSD□35.09□55.5□

1833□1439□□LSD□35.09□55.5□
1439□□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

□LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

LSD□35.09□55.5□□CV (%)□
4.6□
9.2□□

35.09□55.5□□CV (%)□
4.6□
9.2□□

55.5□□CV (%)□
4.6□
9.2□□

□CV (%)□
4.6□
9.2□□

CV (%)□
4.6□
9.2□□

4.6□
9.2□□

9.2□□

□

Table 8: The cumulative mineralization rate of NH_4^+, NO_3^- and total N of the laboratory incubated biomass of green manure species

TIME□	**Cumulative mineralization□□**	**Cumulative mineralization□□ □□NH_4^+□NO_3^- □Total N□□**
Week 1□		

310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□**NH_4^+**□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NH_4^+□**NO_3^-**
□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
NO_3^-□**Total**
N□□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Total N□□Week
1□ 310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 1□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
310.9□
214□0.1423□□W
eek 2□
613.8 □
430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□

877□0.5829□□Week 5□1506.7□1127□

214□0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 0.1423□□Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ □Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ Week 2□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□Week 4□1188.2□ 877□0.5829□□Week 5□1506.7□1127□ 613.8 □ 430□0.2759□□Week 3□ 894.2□ 633□0.4037□□W

eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

430□0.2759□□W
eek 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.2759□□Week
3□ 894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
Week 3□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
894.2□
633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□

633□0.4037□□W
eek 4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
0.4037□□Week
4□1188.2□
877□0.5829□□W
eek
5□1506.7□1127□
□Week

4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
Week 4□1188.2□
877□0.5829□□Week
5□1506.7□1127□
1188.2□
877□0.5829□□Week
5□1506.7□1127□

877□0.5829□□Week
5□1506.7□1127□
0.5829□□Week
5□1506.7□1127□
□Week
5□1506.7□1127□
Week
5□1506.7□1127□
1506.7□1127□0.7
428□□Week
6□1768.4□1367□
1127□0.7428□□
0.7428□□Week
6□1768.4□1367□
□Week
6□1768.4□1367□
Week
6□1768.4□1367□
1768.4□1367□0.8
729□□Week
7□2041.4□1603□
1367□0.8729□□
0.8729□□Week
7□2041.4□1603□
□Week
7□2041.4□1603□
Week
7□2041.4□1603□
2041.4□1603□1.0
385□□Week
8□2312.2□1864□
1603□1.0385□□
1.0385□□Week
8□2312.2□1864□
□Week
8□2312.2□1864□
Week
8□2312.2□1864□

2312.2□1864□1.2
369□□Week
9□2603.5□2105□
1.42□□Week
10□2888.1□2340
□1.6368□□Week
11□3157.6□2577
□1.8066□□Week
12□3428.6□2816
□2.0702□□LSD□
70.17□110.9□
0.05152□□CV
(%)□ 4.6□
9.2 □
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1864□1.2369□□
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9□2603.5□2105□
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