A STUDY TO INVESTIGATE THE RELATIONSHIP BETWEEN CATTLE OWNERSHIP AND MAIZE PRODUCTION BY SMALL SCALE FARMERS OF MAALA AGRICULTURAL CAMP- NAMWALA DISTRICT

RESEARCH REPORT

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DEDICATION

I dedicate this work to my beloved wife Pauline Limbuwa, and my son Moses Miyoba Limbuwa. They were a source of strength to me as they encouraged and supported me in all aspects of my academic study at the University of Zambia, Lusaka.

Above all to the almighty God for giving me good health through out my stay at the University of Zambia, Great East Road Compass.

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ABSTRACT

Although the people of Maala Agricultural Camp own a lot of herds of cattle, their maize production level is not known. The purpose of the study was to investigate the relationship between cattle ownership and maize production. The study was a descriptive research design.

In Maala, cattle play an important part in the cultivation of maize. It is used for land preparation, a source of organic manure and for sale in order to earn money for purchasing of agricultural inputs. Other uses include, pulling of ox drawn vehicles, marriages, and slaughtering during funerals as a source of food for mourners.

From the study, it was discovered that, there was a perfect high positive correlation between cattle ownership and maize production. 80% of the respondents who had high maize production also own cattle while 20% of the respondents who had low maize production do not own cattle but depend on hired oxen to cultivate their fields. Their low production was attributed to lack of oxen to provide farm power to enable them cultivate large hectarage of land.

Although Maala is well renowned for cattle, not everyone owns it. Most of the cattle have died due to the outbreak of corridor disease. This has given impetus to a shift from over reliance on cattle to maize production. Hence maize production has become their livelihood.

CHAPTER 1

1.0 BACKGROUND

Namwala district is geographically west of Choma district. In the south, it shares boundaries with Kalomo district, in the north with Itezhi tezhi, in the east with Monze and Choma districts. In the west is the Kafue National Park. It is divided into four (4) agricultural blocks, namely: Mukobela block, Muchila block, Mungaila block and Chitongo block.

Namwala district is geographically divided into two regions, namely:

i. The Kafue flood plains: the Ila people use these as cattle grazing ground.

ii. Upper land: this has a soil mixture of sandy-to-sand loam. It is used for arable farming and homesteads.

Maala agricultural camp is situated within 5 to 10 kilometers from the banks of the Kafue River. This makes the camp to be divided into two geographical regions, namely the flood plains and the upper land.

1.1 Statement of the problem

Although the people of Maala agricultural Camp have a lot of herds of cattle, their maize production level is not known. Therefore, this research sought to investigate whether cattle ownership has any effects on maize production in Maala Agricultural Camp.

1.2 Purpose of the study

Sharan and Merriam (1995) allude to the fact that the purpose of the study is the rationale behind the study. This is derived from the research problem. Therefore, the purpose of this study was to investigate the relationship between cattle ownership and maize production by the Ila people of Maala agricultural camp. This was done by determining the Ila people's use of cattle and whether the number of cattle one owns does not determine the amount of maize production.

1.3 General Objective

The general objective of the study is a broad direction the researcher takes in his or her study. It gives a broader view as to what the researcher wants to do. In this respect, the general objective of this study was to ascertain whether the low levels of maize production by the Ila people of Maala Agricultural Camp could be attributed to cattle ownership.

1.4 Specific Objectives

Merriam and Simpson, (1995) state that, research objectives are derived from the research problems and reflect researchers' judgment of the most significant factors to the study. The objectives also guide the researcher on the relevancy of the instruments as well as the data to be collected. With this in mind, the research utilized the following objectives;

- To determine whether the number of cattle one owns does not determine the amount of maize production.
- To determine the Maala people's use of cattle

1.5 Significance of the study

Animal draft power is an integral factor for small-scale farmers in the sense that with the utilization of animal draft power, farmers are able to cultivate and manage large fields compared to using hand hoes. Furthermore, cattle are easy and cheap for small-scale farmers to manage as opposed to internal combustion power such as tractors. Consequently, this becomes an appropriate source of farm power to enable small-scale farmers to cultivate large pieces of land as opposed to manual cultivation using hand hoes or the use of tractor power, which is expensive. This results in more crop production, yielding enough for home consumption and the surplus for sell in order to earn money.

This study was important in the sense that the results would help to ascertain whether cattle ownership has an effect on maize production and if any, specific consequences would be identified and help the Ministry of Agriculture and Cooperatives to find ways with which the ila people of Maala agricultural camp could be helped in order that they increase their maize production and become food secured.

1.6 Delimitations of the study

The research study was only conducted in Maala Agricultural Camp. The respondents were small-scale farmers. This limitation arose due to the fact that the study was conducted during the vacation and thus time was very limited. Secondly, financial resources were also limited due to poor funding. Furthermore, the researcher required to drive or commute from his station (Namwala town) to Maala agricultural camp which is a distance of about 65 kilometers, hence taking the poor funding into consideration, it became difficult to extend the study to other areas or to include other variables in the study.

1.7 Definition of terms

1.7.1 ANIMAL TRACTION:

This is sometimes referred to as "Animal Draft Power". It is the use of cattle, which are trained to carry out farm operations like ploughing, weeding, ridging and transporting farm produce to and from the farm using ox carts or sledges.

1.7.2 CATTLE

The word cattle implies or is inclusive of cows, oxen, heifers, bulls, and calves. It is a species name of a specific bovine, (cow family), which is domesticated.

1.7.3 SMALL SCALE FARMER (PEASANT FARMER):

This implies a farmer growing less than 5 hectares of land under crop production with minimal use of advanced farm machinery.

1.7.4 ORGANIC MANURE

This is the mixture of solid and liquid animal wastes and the soiled bedding straw that accumulates in stables and animal enclosures.

1.7.5 ANIMAL DRAWN VEHICLES

This implies implements that are pooled by cattle and are used as a means of transport by farmers. This includes ox carts and sledges.

1.7.6 PRIMARY TILLAGE

These are implements that are used in the initial stage of land cultivation or preparation. They include implements such as mouldboard plough, and harrow.

1.7.7 SECONDARY TILLAGE

These are implements that are used in the second stage of land preparation or cultivation. They include implements such as planter, ridger and cultivator.

1.7.8 AGRICULTURAL CAMP

This is an area that is manned by an Agricultural Extension Officer residing within the rural community. It has a minimum of about 400 peasant and small-scale farmers and a maximum of about 2000. It is locally demarcated by agricultural authorities.

1.7.9 AGRICULTURAL BLOCK

This is an area consisting of about 8 agricultural camps. It is supervised by a Block Extension Officer who resides within the rural community and to whom Camp Extension Officers report. An agricultural block is locally demarcated by agricultural authorities.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 The Ila People

The Ila people belong to the Ila, Tonga, Lenje (Bantu Botatwe) group of people inhabiting the greatest part of the country (Zambia) along the north bank of the Zambezi river from Sesheke to approximately 80 kilometers its confluence with the Kafue river and north ward to the region of the Lukanga river swamp, Jaspan (1953). These people are loosely related to one another, having similar languages and culture. Jaspan (1953) alludes to the fact that, Ila language is a dialect of the Tonga language. The Ila people inhabit 3 Districts, namely Mumbwa, Itezhi Tezhi and Namwala districts.

Cattle ownership is the main agricultural activity of the Ila people. The highest concentration of cattle population is prevalent in the Kafue flood plains and adjacent areas, (Jaspan, 1953). The Ila people are mostly cattle farmers with minor crop farming mainly for their home consumption. Their main or staple crops are maize and groundnuts. Although they do very little of maize production, Jaspan (1953) states that they use ox drawn ploughs to cultivate their fertile soils.

The plain dwelling Ila people have developed a marked pastoral tradition and own distinctive breeds of cattle. The indigenous breeds were initially small but were later cross-bred with the larger barotse cattle, Jaspan (1953). For the remaining tribes, it was reported that a very poor scrub type predominated except where cross breeding with the European cattle took place. However, currently, most people in Maala have cross-bred their cattle with exotic breeds. According to MACO, FAO Report (2003), the most prevalent breeds are the Brahman and boran.

Jaspan (1953) describes the Ila people as primarily pastoral and gives some cattle statistics. In 1920, the Ila people owned 70,000 herds of cattle, in 1947; the number of cattle was estimated at about 47,000, a fall of 23,000 in 27 years. Current statistics obtained from MACO, FAO report (2003) indicates that, in 1997, there were 122,157 herds of cattle, in 2002, there were 104,113 herds of cattle and in 2003, there were 92,697 herds of cattle of which 16934 were in Maala agricultural camp. The decline was attributed to the prevalent of corridor disease.

Jaspan (1953) states that until the Second World War, the Ila people did not sell their cattle but slaughtered them at funeral feasts. Smith and Dale (1920) estimated that about 2000 oxen were slaughtered annually in this way. The Ila keep special funeral oxen (Masuntu) in almost every cattle owner's herd which

are slaughtered at their funeral feasts. Cattle also constitute a major and indispensable part of the bride wealth (chiko) and are used to pay fines and damages.

Every year in the dry season from June to August, the Ila cattle depart with much ceremony for the river banks (kuwila) where there are rich palatable pastures. They return later when the rains have broken (kubola). Each significant stage in the ceremony is accompanied by a feast, Jaspan (1953).

Apart from being pastoral farmers, the Ila people are also fishermen. They construct weirs for trapping fish and dam some of the streams, which dry up during the dry season; the fish is scooped out when there is little water left. They also use fish traps shaped like conical basket. Furthermore, they use spears and hooks as well as poison, Jaspan (1953). The Ilas are also renowned hunters. They hunt through out the year, although there is specific hunting season. When the rains set in and the grounds become soft, communal hunts for the lechwe were organized, Jaspan (1953).

2.2 Cattle

In many parts of the world cattle have different uses. In Iran they were sacrificed to the gods; in India they are venerated almost as gods. In the ancient world they were used as money, a measure of wealth and a means of exchange; in some parts of the world they are still used this way. In Spain they are the center of attention in the national sport, bullfighting. In the American West they grazed

over acres of the open range, before being driven to markets in towns like Dodge City and Abilene. Almost everywhere cattle have been used as a source of food, milk, butter, cheese, meat and of hides for clothing, shelter, and weapons of defense.

As oxen, cattle have ploughed farmers' fields and hauled heavy loads. Cattle have, for thousands of years, been humanity's most valuable animals. They have been the main source of draft power. (http://netvet.wastl.edu/cows.htr).

Traditionally, animal scientists have concentrated on the principal products that cattle provide to western culture. Other products provided by cattle include meat, milk, leather and other fibres, pharmaceutical products, fuel, fertilizers and power. In developing countries, the economic benefits of any one of these products is often difficult to separate from that of other products. This is true of the value of work performed by cattle. As has been noted by McDowell, (1977) the huge drain of foreign exchange that would result from the introduction of mechanized power to replace animal draft power, in total could not be met by any nation if no other increase in industrial production occurred at the same time. The value of working animals in a socio- economic sense includes their social value, their use as a capital reserve for times of need, their production of offsprings, as well as the value of other products. The value of these additional products over the utility of cattle for working may represent the difference between subsistence and starvation in those countries where up to 90% of the power for agriculture is

provided by animals in association with man. This is supported by Smith (1979) when he stipulates the commonly recognized advantages of animal power over mechanical or manual power as: Animals require less capital investment than do machines thereby enabling small-scale farmers to operate their own power source. Operating costs are lower for animals than machines. Animals are adaptable to a wider variety of environments than are machines. Animals produce off springs thereby obviating the need for repurchasing and can also produce a profit and under the conditions of adequate labour the use of working animals can lead to an increase in productivity per person without creating large-scale unemployment.

Falvey (1985) states that animal draft power is an excellent example of mass application of appropriate technology to small-scale farmers in an African context. Palabana (1995), also gives a good view point that technology is appropriate when it closely meets the specific needs of the intended user under the conditions existing on the farm, which a farmer can readily acquire and do effectively and profitably use to significantly increase the quantity and quality of crop production. This is true in the sense that most small-scale farmers fail to cultivate and manage effectively large pieces of land due to lack of appropriate power and implements. Consequently, this leads to reduced hectarage of crops and yields despite having potential to cultivate large pieces of land and produce more than what they produce.

There are many factors that influence the adoption of a specific technology by farmers. It is therefore of great importance to consider and analyze the prevailing farming system in an area before a suitable technology can be suggested. Cole and Ronning (1974) state that in some cases even the so called appropriate technology does not prove to be adequate and justified in the long term due to a number of factors that are ignored. Cole and Ronning (1974), emphasize that before a specific innovation such as animal draft power can be introduced to the farming community, it is essential to be familiar with the most important factors that could either promote or hinder the adoption of the innovation. These could be economical, cultural, technological and environmental constraints. Cole and Ronning, (1974) state that, in most cases, these have been observed to influence adoption of technology by farmers. Therefore, several preconditions should exist before the use of draft animals could be considered. Some of these include the following:

2.2.1 AVAILABILITY OF CATTLE: in some areas or societies, there is a shortage of cattle. The possibility of importing cattle from other regions must be treated with caution. In such regions one should first consider the causes of a shortage in cattle. For example, infectious diseases or traditions or culture could be a reason why animals are not kept in the area. And in the situation where, cattle is available in the area but is not used as a means of farm power, one needs to consider the causes of such a scenario.

2.2.2 AVAILABILITY OF LAND: even though this point may not be so much of a problem for many contemporary small- scale farmers, availability of land is a critical element to the success of draft animal technology. The use of draft animals has no long-term development potential if there is a shortage of agricultural land. Kjoeby (1993), explains that, it is clear that if land for expansion is available, oxen ploughing is capable of expanding the per capital cultivation by almost double and in addition, the bottlenecks of hoe operations are greatly reduced and yields increased. Therefore, it is indispensable that animal traction is an appropriate technology intervention that can fill the gap between the use of hand hoeing and tractor mechanisation.

2.2.3 AVAILABILITY OF IMPLEMENTS: availability of suitable and appropriate animal drawn implements and spare also has a bearing on the adoption of animal draft technology by farmers. Even where farmers adopt such a technology but they are unable to access implements and respective spare, such an adoption may not be sustainable. This is supported by Dibbits et al (1993) who state that, other important factors to consider in good utilisation of oxen in terms of farming are the profitability in farming, rural transport and above all, availability of implements and spares.

2.2.4 EXTENSION SERVICES: an integrated and well-established Agricultural Extension Service is essential for farmers' adoption of a technology. Inadequate Extension Services and lack of appropriate follow up may hinder the development of animal traction technology. This is due to the fact that even

where a community has abundant cattle, they may not be aware of the potential that they have in terms of animal power. In this respect it is imperative that there is an agent to provoke and initiate the idea of using cattle for farm operations.

2.2.5 PRICES/ COST RATIO: a favourable ratio between the cost of production and the price of the produce comes out as a direct incentive to increase production. For animal traction to be viable, it must be economically profitable for a farmer, or have distinct social benefits that compensate for the costs. In such a situation, one would be encouraged to increase production for he or she finds satisfaction in his input.

2.2.6 VETERINARY SERVICES: in an area where there are no veterinary services, it is very difficult to keep cattle due to the fact that in a situation where there is an outbreak of a disease, animals are likely to perish, because of lack of an expert to advise cattle owners on what to do. Not only are veterinary services important for advice in cases of disease controls, but also provide advice to cattle owners on good cattle management practices, which may enhance good and health cattle multiplication. Veterinary services play a very important role in the adoption and use of animal draft power.

2.2.7 CULTURAL AND TRADITIONAL BELIEFS: there are still some arable farmers with no tradition of animal ownership and care or some cultural practices, which discourage ownership, or association with particular animals. It is

extremely difficult to get such communities to appreciate the necessary management skills and the confidence and sympathy that the use of animals demands. On the other hand, some societies may have cattle but their culture or tradition is not that of arable farming. They earn their living through other means such as selling cattle and their by products, hunting, gathering of wild fruits and fishing.

2.2.8 FARMING PRACTICES: for many farmers, the farm equipment available has a direct bearing on the system of cultivation adopted in that particular area. Sufficient consideration of the farming practices and cultivation techniques is essential in introducing and promoting animal traction.

There are several other factors influencing the introduction and expansion of animal draft power technology in a farming system. Depending on the local situation and level of development, these factors can be a complex nature. Therefore, a holistic multi-disciplinary approach should be advocated in identifying and analyzing these factors.

2.3 Advantages of animal draft power

2.3.1 TIMELINESS

A peasant farmer is an important food producer in the developing world. With the rapidly increasing cost of inputs (seeds, fertilizers), the farmer has extensive cropping as one alternative to increase his production, Bates (1957). Unfortunately, his or her

manual power out put becomes the most limiting factor especially considering the space of time in which ploughing and planting has to be done. (For most parts of Zambia, the time between when the soils are soft enough for tillage and the last planting date is very short, just about 2 weeks on average). However, there is little hope of increasing food production only if this power level is augmented. For peasant farming, animal draft power comes out as the obvious possible alternative in supplementing human labour. The use of animal draft power enables work to be done in good time and permits earlier cultivation. Again once cultivation starts, it is completed more quickly and problems regarding timeliness are reduced. Smith, (1979) gives an example of the cattle rice project in Burma where a pair of oxen increased land preparation by an average of 4 hectares per day. The increased number of cattle led to an advancement of the average date of planting by 25%. This reliably increased yield of rice planted on the second two hectares of a 4-hectare plot by up to 300kg per hectare.

2.3.2 LESS EXPENSIVE

Small scale farmers cannot afford to own internal combustion engines for their farm operations due to high purchase costs, complexity, high running costs, lack of repair and service facilities, irregular and small farm plots cultivated by small scale farmers which cannot enable a tractor to maneuver through easily, (Palabana, 1995). In such a situation, animal draft power becomes an ideal source of farm power for it is cheaper to purchase and maintain, less complicated and easy to maneuver in irregular fields and bad terrains. Therefore, this entails that, an individual who has a lot of cattle also has the very much-required animal

draft power because it is the same cattle that provides draft power and hence such a farmer is expected to cultivate large pieces of land than one with few or without cattle. Therefore, under normal circumstances he or she is expected to have large yields.

FAO (1972) states that agricultural output largely depends upon increased availability of energy and other inputs such as fertilizers, water and pesticides. Therefore, many low-income countries should continue to depend on animal draft power, as their resources for mechanization are limited, incremental energy requirements can only be met by increased use of animal power. This necessitates upgrading the whole system including better use of by-products. By products here refer to cow dung (Kraal manure).

2.3.3 ON FARM TRANSPORT

Palabana (1995) state that transportation of goods by domestic animals is certainly very old and dates back to many centuries. Falvey (1985) also states that animal draft power is equally appropriate for hauling ox carts for small-scale transportation (about one tonne) over short distances (below 20km). Although the use of animal drawn vehicles (ox carts) is slower than internal combustion engines, they still remain economical. Over rugged terrain, unpaved roads and narrow paths, such vehicles are able to negotiate easily, Falvey, (1985). The use of animals for ploughing and transportation during the off- season makes animal draught power highly economical in the sense that when they are not ploughing,

they can be hired out to haul loads and serve as a source of earning an income to the owner. Animal drawn vehicles can either be an ox cart or sledge. Simple wooden sledges of various shapes and designs are widely used in Zambia despite having some demerits such as enhancing soil erosion.

2.3.4 ORGANIC FERTILIZER

Apart from being a source of farm power, cattle also provide organic manure necessary for crop production. This is a cheap source of natural fertilizers as opposed to chemical fertilizers. Small-scale farmers with a lot of cattle are more advantaged than those with few cattle as regards the amount of kraal manure that they harvest from their cattle. Such farmers need not to collect and spread it in their fields, but can easily construct kraals at different positions in their fields and keep shifting until such a time when almost the entire field is covered. This reduces labour for collecting and spreading manure in the field. Smith, (1979), states that one herd of cattle produces approximately 1.2 tonnes of cow dung per year. This is equivalent to about 20kg of superphosphate, 12kg of potassium sulphate and 30kg of ammonium sulphate.

Falvey (1985) state that working animals make available dung for fuel and fertilizers; they are the major source of production. This is a major advantage for people that have large herds of cattle, in the sense that they need not to depend on chemical fertilizers, which are expensive. Apart from being expensive, chemical fertilizers have a disadvantage in the sense that prolonged use of

chemical fertilizers on a piece of land degrades the natural fertility and increases the acidity of the soil. This is supported by Mulenga et al (2000) who state that organic manure supplies plants with food and improves soil structure. If mixed with the soil, it helps retain rainfall and plant food. It allows air to enter the soil, prevents soil from crusting, and reduces erosion. If used on the top of the soil, it controls soil temperature, lessens evaporation, and discourages weeds.

2.4 Animal Drawn Implements

2.4.1 MOULDBOARD PLOUGH

A plough is an important agricultural implement mainly used for primary soil tillage. Its main functions are to cut, break, loosen and invert the soil. During this process, the weeds and organic matter, which are on the surface of the soil, are buried. This activity helps the young germinating seeds to grow well without interference from weeds and to have their tender roots anchor well in the loosen soil, Palabana (1995). The process of ploughing is not an end in itself, but it is followed by other subsequent activities.

2.4.2 HARROW

A harrow is usually used immediately after the plough has been used. It is used to break clods, smoothing and leveling a ploughed field. Other uses include; breaking up clods to a finer tilth by hitting them, uprooting weeds on winter ploughed fields, raking off excess trash, grass and weeds, which may hinder

fertilizing and planting, and micro leveling of the top layer of a ploughed field, Palabana, (1995).

Falvey, (1985) states that harrowing can also be employed to burry broadcasted seeds such as millet seeds and work in mineral fertilizers into the soil and spread manure. This is an important implement for farmers who use kraal manure in their field for it facilitates the easy spreading of manure to all parts of the field hence making the application much easier and faster than using manual application. Harrows can also play a part in mechanical weed control before the crops sprout and while they are very young.

2.4.3 RIDGER

This is yet another important animal drawn implement. It can be classified as a multipurpose implement. It is used for both primary and secondary tillage operations. A farmer can make ridges to plant seeds on or as a means to plant a crop for it has a burying effect when in use. When used as a weeder, a ridger cuts a furrow between the crop rows, uprooting weeds and throwing soil right and left against the crop, Palabana (1985). The ridger's share can be made more pointed by fitting on a longer tine and hence becoming more of a ripper suitable for working in harder soils also as a ripper for opening up furrows in which seeds are to be planted.

2.4.4 CULTIVATOR

A cultivator is normally used to remove weeds between rows of growing crops. However, it can also be used in the following operations; to cut, break, loosen and mix the soil, to eradicate weeds, and to aerate the soil.

The cultivator can be used immediately after ploughing to create a suitable tilth for planting or in case of winter ploughing, to break the soil surface and destroy weeds before planting can be done. A cultivator can take different types of tines depending on the nature of operation to be done unlike the harrow, which mainly breaks the clods and rakes the soil, the cultivator tines can cut the soil horizontally, lift it, push it sideways and drop it. Spring tine holders can increase the clod breaking, loosening and mixing effect of the cultivator.

2.4.5 PLANTER

There are two types of animal drawn planters, namely; Chain driven planter. This is a type of planter that has a drive chain attached to the wheel whose purpose is to transmit power from the wheel to the rest of the planter where it is needed for its operation. The other type of a planter is the Pitman drive planter. This is type of a planter that has metal bars attached to the wheel to operate the planter's gears, which in turn rotate the seed and fertilizer-metering unit. In other words, pitmans are pieces of metal bars which transmit power from the wheel to the rest of the planter for its operation, Palabana (1995).

A planter is a basic implement at planting time and very easy to work with. Normally, a planter also has a fertilizer hopper attached to it. It therefore comes out as an ideal piece of equipment for fertilizer application and planting at the same time because it saves labour and time.

The major advantages of using a planter are that: The seeds are planted at precise intervals, hence achieving the required number of plant population in the field. Secondly, having a seed and fertilizer hopper, implies that, it saves time as it does two operations at once that is fertilizer application as well as seed planting. Thirdly, seeds are planted at the required depth, hence achieving a maximum seed germination rate.

2.4.6 ON FARM TRANSPORT

Transportation of goods by domestic animals is certainly very old and dates many centuries back. Different species of animals in different communities have been used for transport purposes, carrying anything either people or goods. In this context, we are only confining ourselves to cattle as the only source of transportation. This involves the use of ox carts, and sledges. Oxcarts are an appropriate means of transport for small-scale farmers in the sense that, they are cheaper to own than internal combustion engines. Cheapness here implies both the purchase cost as well as maintenance costs. Furthermore, they are less complicated.

Ox carts can be used for the following; to carry farm manure to the fields, to carry farm produces to the market, to carry fertilizers and other farm requisites from their source to homesteads or fields and to let on hire to other farmers during the off-season and hence act as a means of raising some income.

It is important to note that even where a farmer has an internal combustion engine, it is necessary for him or her to have an ox cart due to the fact that although an ox cart is slower than an internal combustion engine, an ox cart still has an advantage for it can be used in rough terrains where the use of a tractor may be impossible.

2.5 Maize

2.5.1 PLANTING AND CULTIVATING

Maize is the largest member of the grass family (Gramineae). It has a fibrous woody stalk that may grow from 6 to 20 feet high depending on the variety. Its scientific name is Zea mays.

A strong, full crop of maize comes from fertile soil, good seed, thorough cultivation, and clean culture. The soil should be easily worked, well drained, and rich in plant food. The dark loam soils are particularly well adapted for maize. However, maize does well also in loam soils, which are fertile with a soil acidity (PH) of 6 to 7. Maize is a warm season crop, which requires an optimum temperature of between 18 and 21 degrees Celsius, Metcalfe and Elkins (1980).

2.5.2 LAND PREPARATION

Most land preparation is done between October and November before rains start. However, large-scale farmers do practice winter ploughing (April and May). Land preparation largely depends on the environment. This takes into consideration the types of soils and moisture available. This implies that, if land preparation is over done such that the soil becomes too fine, this is likely to cause surface run offs, (soil erosion). However, Metcalfe and Elkins, (1980) state that, a field in which maize is to be planted must first be cultivated by cutting, digging and upsetting the soil in order that the soil microbes are exposed and the surface, weeds and other trashes are buried. The second stage in land preparation is to break the clods to a finer tilth and rake out the weeds and trashes. After this satisfactory work, maize seeds must be planted in rows of 75 cm to 90 cm apart and intra row spacing of 20 cm to 30cm. The seeds should be planted to a depth of 5cm.

2.5.3 SEED VARIETIES

There are several varieties of maize and hence a farmer chooses the seed or variety that is suitable to conditions on his land. Such conditions also include climatic conditions. The major determinant of the variety suitable for a particular geographical region is rainfall. In regions where the amount of rainfall received is less, (800 mm and less) it becomes imperative to use early maturing varieties such that by the time the rains are coming to an end, the crop will have already

grown and matured, Muliokela, (1995). Early maturing varieties are the 400 – 600 series. On the other hand, in regions that receive a lot of rainfall, (1000 mm and more) it also becomes imperative to use late maturing varieties. Such varieties are the 500 – 700 series. If a farmer uses early maturing varieties in a region that experiences long rain seasons, the crop will mature and dry before the rain season comes to an end and hence the cobs will rot. On the other hand, if a farmer uses late maturing varieties in a region that experiences short rain seasons, the rain season will come to an end before the crop matures. It is therefore important to use the right type of seed suitable for that particular region.

Metcalfe and Elkins, (1980) state that, maize draws heavily on the plant food in the soil. Production is higher when maize crops are rotated on a three-year cycle. The first year a legume, such as alfalfa or sweet clover, builds up the soil with nitrogen and humus. The next year corn grows tall on these, its favorite foods. The third year a small grain is planted. Then the cycle is renewed with a legume.

2.5.4 WEEDING

It is always good to plant in a clean field in order to avoid early weeding. Mostly, 2 to 3 weedings in maize are recommended. The first weeding should be done when weeds have grown and this is usually within 10 to 15 days after emergence. The second weeding should be done 25 to 30 days after emergence, Metcalfe and Elkins (1980). Weeding is an important activity in maize production. If the weeds are allowed to grow, they will over take the crop

and consume soil nutrients, which are supposed to be consumed by the crop, and this will consequently lead to a reduced yield.

2.5.5 FERTILIZERS

Muliokela (1995) state that Maize requires a lot of fertilizer input. Fertilizer should be applied twice in a maize field. The first application is called basal dressing and this should be applied before planting, at planting or just after the seeds have emerged. The recommended requirements are 300 to 400 kg per hectare of compound D. The next application should be done when the crop has reached knee height. This application is called top dressing. Chemical fertilizers basically consist of nitrogen, phosphorus and potassium. These are the major mineral requirements of maize.

However, Metcalfe and Elkins, (1980) state that application rates of fertilizers are best based on soil test results. This implies that different soils have different fertilizer requirements. Mineral compositions of chemical fertilizer especially nitrogen can also be derived from residues of legume crops used in the rotation, from soil organic reserves or from animal manure.

2.5.6 HARVESTING

Maturation of maize varies according to varieties. Early maturing varieties (400 series) take 90 days to mature while late maturing varieties (700 series) take about 150 days to mature. When maize matures, it has about 30 % moisture

content and should be left in the field to dry. Metcalfe and Elkins (1980) state that there are several ways to harvest, and dry maize. Maize can be harvested with varying moisture content. It can be stored in the ear, as high moisture shelled or ground ear maize or as dry shelled maize. It can also be cut and stooked. After thorough drying it can be removed from stalks and shelled.

CHAPTER 3

3.0 METHODOLOGY

3.1 Research Design

This study was designed to be a descriptive research design. The central focus of a descriptive research design is to examine facts about people, their opinions and attitudes, Kerlinger (1986). Its purpose is not to give value to sets of relationships between events, but simply to draw attention to the degree two events or phenomena are related. The purpose of a descriptive research design is to systematically describe the facts and characteristics of a given phenomena, population or area of interest. Description may include collection of facts that describe the phenomena, identify problems or justifications of current conditions and practices, project or product evaluation and if need be make a comparison of experiences between groups with similar problems in order to assist in future planning and decision making, Kerlinger (1986.

Therefore, in order for the researcher to collect data effectively for this study, he employed a survey technique. A survey technique is a situation where by the respondents are asked to respond to written or orally administered schedule of questions. Written forms of survey are called questionnaires. In this regard, the researcher employed the use of questionnaires. Using questionnaires, both qualitative and quantitative data were sought. This was further triangulated with a focus group discussion guided by an interview guide, which was designed to

provoke a discussion with the respondents in order that they could express themselves and in return the researcher would enlist the information necessary to his study. The research type of this study was a block design. This is due to the fact that it was designed to be conducted at once and would not require any further follow ups or continuation in future.

3.2 POPULATION

Population is the entire universe under consideration. In this regard, it was the entire population or whole number of small-scale farmer in Maala agricultural camp. According to statistic obtained from the Block Extension Officer of Mungaila Agricultural Block in which Maala agricultural camp is located, there are about 200 small-scale farmers in Maala agricultural camp and therefore, this was the population under consideration.

3.3 SAMPLE

Usually, it is not possible to gather observations from all the possible cases in a population, in this case all the 200 small scale farmers. This is due to the fact that though the population of Maala agricultural camp is finite, it is so large that it would take long and too costly to collect data from each small-scale farmer in the area. In this respect, the researcher collected data from a relatively small number of small-scale farmers. The group from which the researcher collected data is called the sample. This sample was a representation of the entire population of small-scale farmers in the area in the sense that only those with similar

characteristics like all the small-scale farmers were considered. In other words, only those that met the criterion of representativeness for small-scale farmer in *Maala agricultural camp were considered. The researcher used a systematic* random sampling procedure basing on the list of small-scale farmers obtained from the Block Extension Officer of the camp, as his sampling frame. The first sample comprised of 60 respondents to which the researcher administered questionnaires. Another sample of 15 respondents were involved in a focus group discussion and these were not administered with questionnaires. The researcher arrived at this sample size due to his inability to have more respondents due to limited time and resources, especially that he was required to move a long distance from his station to Maala agricultural camp, which is a distance of approximately 65 kilometers.

3.4 INSTRUMENTS

Data collection instruments are techniques, which the researcher employs in order to collect information from the respondents. Survey instruments are used in survey research to obtain standardized information from the respondents in the sample. The researcher administered the same kind of instruments to all respondents in order to obtain same and valid information. Also, the conditions of administration were similar for all respondents in the sample. Another group of respondents was involved in a focus group discussion guided by an interview guide designed to provoke a discussion in order that more information could be

obtained from the respondents and furthermore the information obtained through the questionnaires could be validated.

There are several ways or techniques that are used to collect data. However, for the purpose of this study, the researcher used questionnaires and an interview guide, which he used for the focus group discussion. The questionnaires comprised of both closed and open-ended questions in order to allow the respondents to express their views. Closed ended questions are question that do not give the respondent room to express his or her views but ticks or picks his or her response from the list of pre written responses within the questionnaire. Open-ended questions are questions that give room to the respondent to express his or her response in his own words. Normally open-ended questions have open spaces where the respondent writes his or her response.

3.5 DATA COLLECTION

Data collection is the process of collecting information from the respondents. As earlier indicated, the researcher used questionnaires as data collecting instruments and an interview guide. The questionnaires were administered to 60 respondents while 15 respondents were involved in a focus group discussion. The researcher personally administered questionnaires to the respondents who filled them in by themselves. In the event where by the respondent could not read and write, the researcher read the questions to the respondent and once the

respondent answers, the researcher wrote the answer on behalf of the respondent.

The researcher was guided from one respondent to another by the use of a systematic random sampling procedure adopted to select the sample. The questions contained in the questionnaire were constructed in such a way that they enabled the researcher to obtain information about the respondents' beliefs, interest, and attitudes.

3.6 DATA ANALYSIS

The first thing that was done at this stage of data analysis was data processing, which involved editing the information in the questionnaires so that there was consistence. Partially answered questionnaires and unnecessary information was weeded out.

Data collected was organized in themes. Each question in the questionnaires belonged to a specific theme such that at the time of actual analysis, the researcher had to first organize and arrange each response according to its respective theme. This study basically had two themes, namely; usage of cattle and determinants of high maize production.

CHAPTER 4

The purpose of this study was to investigate the relationship between cattle ownership and maize production by the Ila people of Maala agricultural camp.

In order to carry out this study effectively, specific objectives were set and they are as follows:

- To determine whether the number of cattle one owns does not determine the amount of maize production.
- To determine the Maala people's use of cattle

In order to answer each of the above objectives, themes for each objective were developed. This implies that each question in the data collection instruments belonged to one of the themes. The themes were derived from the objectives and included the following; usage of cattle and determinants of high maize production.

4.0 FINDINGS

During the research study, the researcher discovered that although Maala agricultural camp is well renowned to have a lot of cattle, not every person owns cattle. There are some people who own as much as 4000 herds of cattle while others do not even own a single herd of cattle. Among those who do not own cattle are those who used to own some herds but due to corridor disease, they all died.

During the focus group discussion, the participants agreed to the fact that their maize stocks usually finish about every February of each year. However, they stressed that this does not mean that they do not produce enough maize, but the reason is that, since their herds of cattle have perished as a result of corridor disease, maize production has taken the place of cattle, in being the main source of money. This implies that, cattle were their livelihood. In the same manner maize production has become their livelihood. For all their requirements, (school fees, inputs, medication, food, clothes and so forth) they have to depend on the sell of maize, as a result the remaining stocks do not reach the next harvest. The respondents stressed that the assertion that Ila people do not cultivate maize because they own cattle is an old myth. Almost every one has a field of maize on which he or she depends.

Having realized that maize production has become their livelihood, the people have taken the initiative of increasing their maize production by cultivating in the flood plains were the soils are rich and require no application of chemical fertilizers.

4.1 USAGE OF CATTLE

Land Preparation: cattle play a major role in land preparation for maize cultivation. Even those farmers who do not own cattle use hired oxen to cultivate their fields. Implements used in land preparation include mould board plough, harrow and cultivators.

Sale of Cattle: in times of hardships such as shortage of food, cattle play a major part in the sense that, they are often sold in order that they can have enough money to buy food for consumption. Cattle are also sold in order to generate money for children's school fees, uniforms and other school requisites. Other reasons for selling of cattle include generation of money to buy drugs for other herds of cattle, generate money for human medication in times of ill health and also to buy clothes and agricultural inputs such as seeds, fertilizers and spare parts for farm implements. Cattle are also slaughtered during funerals in order to provide food for mourners.

Manure: Apart from being a source of farm power for land preparation, cattle also provide organic manure necessary for maize production. This is a cheap source of natural fertilizers as opposed to chemical fertilizers which are rare to find and expensive. Small-scale farmers with a lot of cattle construct make shift kraals at different positions in their fields and keep shifting until such a time when almost the entire field is covered. In such a manner they ensure that almost the entire field is covered with manure. However, there are some farmers who do not use cattle manure, especially those who do not own cattle and those who cultivate in the flood plain. This is due to the fact that, the soils in the flood plains are fertile and require no manure or fertilizer application. It was interesting to note that more and more people were cultivating in the flood plains because of the fertility of the soils. However, they still maintain their old field on the upper land.

Food: The small-scale farmers of Maala agricultural camp seldom slaughter their cattle for meat. However, when an animal has been bitten by a crocodile or it is sick or has been injured and the chances of survival are slim, it is usually slaughtered for meat. Cattle are also slaughtered during funeral ceremonies to provide food for mourners. Cattle also provide milk for the owners. Sour milk is an important component of the Ila people's diet.

Transport: cattle play an important role in providing transport for hauling loads for short distances. Both sledges and ox carts are used as a means of transport that is pulled by oxen. However, the use of sledges is being discouraged because of its adverse effects of loosening the soil and making it vulnerable to being eroded away by rains.

Marriages: cattle play a major role in marriages in Maala. It is paid as bride price (chiko). A total of about 7 herds of cattle are paid as bride price. Only in the event where the bridegroom has no cattle is cattle converted to monetary terms.

4.2 DETERMINANTS OF HIGH MAIZE PRODUCTION

In order to have a high production of any product in any business or industry, there has to be some factors in place to facilitate high production. These factors may either be intrinsic or extrinsic to the producer. In a similar manner, there are some factors that were discovered to have a bearing on high maize production in Maala agricultural camp and they are tabulated below;

Government Policies on Agriculture: it was discovered that there was a general increase in maize production per small-scale farmer in the last 2 seasons. Most of the respondents indicated that, they expected more yield than they obtained last season. The reason attributed to this high level of productivity was the fact that, the farmers had access to agricultural inputs such as maize seeds and fertilizers through the fertilizer loan scheme introduced by government. They expressed gratitude because most of them were able to afford it because of its low price as a result of government subsidies on the same.

However, they expressed disappointment in the manner the maize crop marketing exercise was conducted. Despite their high maize production, the government had failed to buy their harvest because of bad marketing strategies. For instance, in the case of Maala camp, there were no government agents to buy the commodity within the camp. Instead, farmers were advised to transport their produce to Namakaka Cooperative shed, which was adopted as a marketing center, and is a distance of approximately 80 Km, and most farmers have no transport of their own. However, the government buying agent (Namwala District Cooperative Marketing Union) had set conditions for those willing to have their produce transported to Namakaka marketing point to pay K4000 per 50 Kg bag and another K1500 per empty grain bag. Therefore, out of the K36, 000 government set buying price, farmers were going to loose K6000 per 50Kg bag. They felt this was too much for them and this was frustrating their

production efforts. However, they suggested that, since in every village, there are local cooperatives that were established, why couldn't the government-buying agent (NDCMU) use the same cooperatives or alternatively embark on a mobile maize buying exercise since they had transport. This could easily be done by moving from village to village and in such a manner, farmers could not be disadvantaged as was the case.

As a result of the farmers' failure to transport their produce to Namakaka, private buyers were taking advantage of the situation and ended up exploiting farmers by buying maize from about K9000 to K18, 000 per 50 Kg bag. The farmers expressed that such bad policies were frustrating their production. They felt that even if the government had initiated fertilizer loan schemes, the whole idea was being defeated by not putting in place a good marketing strategy. Therefore, this would demotivate farmers from producing more.

Farm Power: cattle play an important role in maize production in Maala agricultural camp. According to the tradition and culture of the Ila people of Maala, cultivation or land preparation is done by oxen. This gives the farmers an advantage of timeliness in land preparation and other farming operations. Secondly, large pieces of land are cultivated compared to cultivating using hand hoes. Oxen are usually used for 3 farm operations, namely; land preparation, harrowing and weeding. The use of oxen also serves labour and provides kraal

manure, which is sometimes used in combination with chemical fertilizers or in isolation.

80% of the respondents indicated that they use farm power in form of oxen while 20% indicated that they use manual labour using hand hoes due to lack of oxen. It was discovered that the 80% who use oxen for cultivation also produce more yields than the 20% who use manual labour. This indicated that there is a high positive relationship between cattle ownership and high maize production, although some people are purely pastoral farmers and these are classified at a commercial level. This implies that their main productive sector is cattle rearing and not arable farming. But generally, for small-scale farmers, the more cattle one has, the more maize he or she produces than those without cattle.

Availability of Agricultural Inputs: availability of agricultural inputs is a very important factor to consider in maize production. This is because even where farmers have the enthusiasm to produce, but cannot access inputs, there enthusiasm will remain as a pipe dream. According to the respondents, this was evidenced in the last 10 years when the government closed down the SPCMU, which was the sole provider of agricultural inputs to farmers. The closure of SPCMU very much negatively affected maize production, as there was no one to provide ready inputs to farmers. On a better note, the present government seems to have recognized the importance of providing agricultural inputs to farmers. According to the respondents, this can be evidenced in the

government's endeavours to provide inputs at subsidized prices. According to the respondents, the sharp increase in maize production in the last 2 years by most of the farmers is attributed to the availability of agricultural inputs.

Availability of Agricultural Extension Service: an integrated and well-established Agricultural Extension Service is essential for farmers' maize production. Inadequate Extension Services and lack of appropriate follow up on new innovations may hinder high maize production by small-scale farmers. This is due to the fact that even where a small scale farmer require advice on maize production and there is no one to offer that advice, his production may negatively be affected because there is no one to correct his agricultural malpractice. According to the respondents, although maize production has been in existence for a long time, the government should not take it for granted that all the small scale farmers know what to do in terms of maize cultivation. Besides Agricultural Extension Officers are not only there for maize production but a lot other things in the field of agriculture. Therefore, the government should seriously consider stationing an Agricultural Extension Officer in Maala agricultural camp, if the small-scale farmers have to be advantaged in terms of agricultural production.

CHAPTER 5

This chapter discusses the findings of the study and makes recommendations, which the Ministry of Agriculture and Cooperatives (MACO) may find, to be of use in its endeavours to promoting high maize production by small-scale farmers in Maala agricultural camp.

5.0 DISCUSSION

The purpose of this study was to investigate the relationship between cattle ownership and maize production by the Ila people of Maala agricultural camp, because of the assertion that, the Ila people of Maala agricultural camp own large herds of cattle, however they do very little in terms of maize production, despite it being their staple food. Usually, their (Ila) maize stocks run out around February of each year. Once their stocks run out, they resort to purchasing maize from other parts of the district for their survival.

Basing on the findings of this study, it was proved that this assertion is an old one and does not hold water any more. This used to be the case when almost all the people had cattle and used to earn their livelihood from cattle rearing. However, with the coming of corridor disease, most people have lost their cattle and have since shifted their livelihood to maize cultivation. Because of their shift to maize production, maize has since taken the place of cattle rearing. This implies that, people depend on the sell of maize for all their necessities. In order to raise

money for children's school fees, medication, buy clothes, and purchase of agricultural inputs, they have to sell some bags of maize. Therefore, this makes it difficult for their stocks to run from one season to the other because of the great demand, which is made, on maize. As a result it runs out at around February of each year. This compels them to resort to purchasing maize from other places for their survival.

5.1 RELATIONSHIP BETWEEN CATTLE OWNERSHIP AND MAIZE PRODUCTION

Although most of the cattle have been wiped out by corridor disease, there are still some people with good herds of cattle. Some people are purely pastoral farmers while some are mixed farmers, keeping cattle as well as cultivating crops such as maize. There are also some people who do not own a single herd of cattle but depend on hiring oxen for cultivation.

From the study, it was discovered that, there was a perfect high positive correlation between cattle ownership and maize production. 80% of the respondents who had high maize production also own cattle while 20% of the respondents who had low maize production do not own cattle but depend on hiring oxen when they can afford.

It was discovered that, cattle play an important part in the cultivation of maize. Firstly, it is used for land preparation. The implements used include mouldboard

plough, harrow and cultivator. This gives farmers an advantage of cultivating large pieces of land compared to cultivating using hand hoes and it also enable farmers to cultivate their land in good time as it is faster than using hand hoes. Therefore, the more oxen a farmer has, the faster he or she will be in term of cultivating his field and the more land he will be able to cultivate compared to one who has no oxen or one who only has a single pair of oxen.

Secondly, the more herds of cattle a farmer has, the more kraal manure he gets than one with fewer herds of cattle. Manure is very much used in maize production as an organic fertilizer. It is sometimes used in combination with chemical fertilizers or in isolation. This implies that, a farmer who uses a lot of kraal manure usually saves on the cost of chemical fertilizers than one who entirely depends on chemical fertilizers, which are expensive. This therefore, gives an advantage to those farmers who own a lot of cattle for they harvest more kraal manure from their cattle.

Thirdly, a farmer who owns a lot of cattle is more likely to sale some during times of need than one with fewer herd of cattle. This implies that, a farmer who owns more cattle is likely to sell some in order to purchase agricultural inputs such as maize seeds and fertilizers than a farmer with few herds of cattle. This in turn implies that a farmer with more herds of cattle is likely to cultivate and manage large pieces of land because he or she is able to buy needed inputs.

5.2 CONCLUSION

There is a high perfect positive relationship between cattle ownership and maize production in Maala Agricultural Camp. The more herds of cattle a farmer has, the more maize he or she produces. This is attributed to the fact that, oxen are used for land preparation. Therefore, the more oxen a farmer has, the more land he or she prepares and in good time to enable him or her carry out all the recommended agricultural practices. Secondly, farmers who own a lot of cattle harvest more kraal manure from their cattle, which they consequently use in maize cultivation as an organic fertilizer. Some farmers use kraal manure in combination with chemical fertilizers while others use it in isolation. Therefore, this entails that, the more cattle a farmer has, the more manure he is able to collect for his maize field. A farmer who owns more cattle is more likely to sale some in order to buy all the required agricultural inputs than a farmer with a few herds of cattle. This implies that, the more cattle a farmer has the more secure he or she will be in terms of agricultural inputs.

As much as the farmers may have the very much cherished farm power to enable them cultivated large pieces of land, there are particular factors that may enhance their productivity. Such factors include government policies. The fertilizer support scheme that has been implemented by the government has enabled farmers to increase their maize production in the last 2 years. However, the bad marking strategy where by all farmers in the district where required to

transport their produce to a distant marketing point (Namakaka) was frustrating farmer's efforts.

The availability of farm power also plays a role in high maize production by small-scale farmers. This is due to the fact that, where a farmer has oxen as a source of farm power, he or she is able to cultivate large pieces of land as compared to cultivating by the use of hand hoes. Other factors that determine the high production of maize include availability of agricultural inputs and the availability of agricultural extension services.

5.3 RECOMMENDATIONS

Marketing Strategy: as much the farmers appreciate the introduction of maize marketing, much needs to be done in order to perfect the strategy. For the entire Namwala district, the marketing center was at Namakaka Cooperative center, which is approximately 80Km from Maala. Most of the farmers were unable to transport their produce due to lack of transport. However, the government buying agent (Namwala District Cooperative Marketing Union) had set conditions for those willing to have their produce transported to Namakaka marketing point to pay K4000 per 50 Kg bag as transportation cost and another K1500 per empty grain bag. Therefore, out of the K36, 000 government set buying price, farmers were going to loose K6000 per 50Kg bag. They felt this was too much for them and this was frustrating their production. However, the researcher recommends that, since in every village, there are local cooperatives that were established,

these could be used as buying agents also, other than NDCMU alone. Alternatively, NDCMU could embark on a mobile maize buying exercise since they were able to source transport. This could easily be done by moving from village to village and in such a manner, farmers could not be disadvantaged as was the case.

Availability of Inputs and Implements: as much as the farmers appreciate the fertilizer support scheme were small scales farmers are able to access subsidized inputs more needs to be done. Farmers not only need inputs, but also require implements as well as spare parts for their implements. Therefore, through the same system of input provision, the researcher feels that even implements and spare for implements should also be available such that, as farmers collect their inputs, they are also able to buy the required implements and spare. Lack of implements also has an effect on the production of maize in the sense that, most the implements and spares are not readily available in rural areas.

Extension Service: an integrated and well-established Agricultural Extension Service is essential for farmers' production. Inadequate extension services and lack of appropriate follow up on new innovations may hinder high maize production by small-scale farmers. This is due to the fact that even where a small scale farmer require advice on maize production and there is no one to offer that advice, his production may negatively be affected because there is no one to

correct his agricultural malpractice. Although maize production has been in existence for a long time, the government should not take it for granted that all the small-scale farmers know what to do in terms of maize cultivation. Besides Agricultural Extension Officers are not only there for maize production but also other agricultural related activities. Therefore, the researcher recommends that, the government should seriously consider deploying an Agricultural Extension Officer to Maala agricultural camp, if the small-scale farmers have to be advantaged in terms of agricultural production.

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A STUDY TO INVESTIGATE THE RELATIONSHIP BETWEEN CATTLE OWNERSHIP AND MAIZE PRODUCTION BY SMALL SCALE FARMERS OF MAALA AGRICULTURAL CAMP- NAMWALA DISTRICT.

FARMERS ADMINISTERED QUESTIONNAIRE.

By: Limbuwa Benedict

INTRODUCTION

My name is Limbuwa Benedict. I work for the Department of Field Services and stationed in Namwala District. Currently I 'm pursuing a Bachelor of Adult Education programme at the University of Zambia. This study is purely academic and is intended to find out the relationship between cattle ownership and maize production in this area.

You are therefore earnestly requested to freely complete this questionnaire. Answers will be treated with high confidentiality

INSTRUCTIONS

1. Do not write your name on the questionnaire.
2. Comment or just tick the answer in the appropriate box where required. [ ]

1. Sex
   1) Male [ ]
   2) Female [ ]

2. How long have you been living in this area?
   1) Less than a years [ ]
   2) 2 - 4 years [ ]
   3) 4 - 6 years
   4) More than 6 years [ ]

3. What is you education level?

1) Grade 9 and less [ ]

2) Grade 12 [ ]

3) College level [ ]

4) University level [ ]

5) Others [ ]

4. In which age group do you belong?

1) 18 – 25 years [ ]

2) 26 – 32 years [ ]

3) 33 and above [ ]

5. Marital status.

1) Unmarried [ ]

2) Married [ ]

6. Do you own cattle?

1) Yes [ ]

2) No [ ]

7. If yes, do you use them for farm operations?

1) Yes [ ]

2) No [ ]

8. Apart from farm operations, how do you use your cattle?

.....

.....

.....

9. How many hectares of maize do you cultivate?

1) Less than 1 [ ]

2) 1 to 2 hectares [ ]

3) 2 to 3 hectares [ ]

4) 3 to 4 hectares [ ]

5) 5 and above [ ]

10. Does the distance from town (Namwala) affect you maize production?

1) Yes [ ]

2) No [ ]

11. If Yes to question 10, state how it affects your production.

.....

.....

.....

12. Do you use Kraal manure in maize growing?

1) Yes [ ]

2) No [ ]

13. If no what do you use?

.....

.....

14. What kind of animal drawn implements do you use?

.....

.....

.....

15. Are animal drawn implements and spares readily available in the area?

1) Yes [ ]

2) No [ ]

16. If no, where do you buy them?

.....

17. If no does the non availability of implements and spares in the area affect your maize productivity?

1) Yes [ ]

2) No [ ]

18. Does your cattle contribute to your maize production?

1) Yes [ ]

2) No [ ]

19. If yes, state how it contributes to your maize production.

.....

.....

.....

20. How many bags of maize did you harvest last year?

.....

21. How many bags of maize are you expecting this year?

.....

22. In the event where your yields are low, how do you manage your food security?

.....

.....

.....

23. How many herds of cattle do you sale per year?

1) Less than 5 [ ]

2) 5 to 10 [ ]

3) 10 to 15 [ ]

4) 15 to 20 [ ]

5) 20 and above [ ]

24. What leads you to sale your cattle?

.....

.....

.....

25. Do you have Agricultural Extension Services in this area?

1) Yes [ ]

2) No [ ]

26. If no, does the lack of Agricultural Extension Services in the area affect your maize productivity?

1) Yes [ ]

2) No [ ]

27. If yes, state the ways in which it affects your maize productivity.

.....

.....

.....

28. Are Agricultural inputs readily available in the area?

1) Yes [ ]

2) No [ ]

29. If no, where do you buy agricultural inputs?

.....

.....

30. From your own opinion. What do you think can make you increase your maize productivity?

.....

.....

.....

INTERVIEW GUIDE

1. How would you rate maize production in this area?
2. What factors can you attribute to such production levels?
3. In times of food shortage, how do you meet your food requirements?
4. Where do your buy agricultural inputs?
5. What do you think can lead to an increase in maize production?
6. What leads you to sell your cattle?
7. How does cattle contribute to maize production?
8. How do you use your cattle?