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RESEARCH REPORT

TITLE:

AN INVESTIGATION INTO THE SERVICES OFFERED BY
EXTENSION WORKERS AND THE FACTORS WHICH CONSTRAIN
FARMERS FROM ADOPTING RECOMMENDED FARMING
PRACTICES. A CASE STUDY OF SELECTED FARMER GROUPS IN
CHOMA DISTRICT.

A RESEARCH STUDY IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE AWARD OF A DIPLOMA IN ADULT EDUCATION AT THE
UNIVERSITY OF ZAMBIA.

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- (i) Data collection instruments.
- (ii) Letter of permission to carry out research

DEDICATION

This research project is dedicated to my parents Silas and Sarah Mungala for their unlimited love and inspiration.

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My first gratitude goes to Mr. P.C. Chuma my research supervisor for the professional advise, ever ready attitude, direction and love for his work. His immense knowledge and skills properly articulated have greatly contributed to the success of this project.

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I also wish to thank the extension and training officer and the camp extension officers for Choma District Agricultural Office for the cooperation and support rendered to me during the course of data collection.

My appreciation also goes to my young brothers and sisters, Sikumba, Mary, Chimuka, Mutame, Therese and Mubita for their Love and encouragement.

Lastly to my friends whose support and encouragement contributed to the successful completion of this study.

DEFINITION OF OPERATIONAL TERMS

In this study the researcher used certain terms which may confuse the reader in that they may carry different meanings to different people. To help the readers understand this report, the researcher defined the following terms in the content of the study:

Agricultural extension worker:- A technically agricultural trained worker who is in charge of imparting technical advice on improved methods of farming to the farming community and identify their farming problems (Bose, 1961).

Agricultural extension services:- The assistance given to farmers so as to help them identify their production problems and to be aware of the opportunities for improvement (Bose, 1961).

Block:- A demarcated area in a district consisting 300 to 350 farm families (Dunn, 1978), which makes it easy for the Agricultural Officers to supervise.

Camp:- A sub-unit of a block. It comprises 80 farm families and is managed by an agricultural extension workers known as camp agricultural workers (Dunn, 1978).

Food staples:- Food that is used and needed in the house at all times (E.K. Mbewe, 2001).

Innovation:- A new idea, method or invention (Kirk Patrick).

The following chapter reviews literature related to the research study.

ABSTRACT

This study assesses the services offered by extension workers and the factors which constrain the farmers from adopting recommended farming practices. To be studied were selected farmers' groups in Choma district.

The objectives of the study were fourfold: first to determine the quality of extension services offered to the farmers in Choma district. This was important because of the decrease in the farming production in the affected areas; secondly, to find out the obstacles faced by extension officers in their interaction with the farmers to ascertain the problems they face in delivering the information. Thirdly, to determine the farmers' knowledge and use of recommended farming methods in relation to the low yields being experienced in the area. Fourthly, to find out the farmers responses regarding the poor quality and quantity of the crops.

Methods that measured these objectives were employed through questionnaires to measure the results quantitatively and interviews to measure the results qualitatively. Since most of the farmers in the selected area could not read and write an interview guide was used to collect the needed data. Officials at the Ministry of Agriculture Food and Cooperatives were interviewed to find out their views on the future of the existing farming methods to determine the impact of modern methods of farming.

The study concluded that lack of adequate interaction of farmers with the extension officers resulted into inadequacy in variable knowledge and skills needed in recommended methods.

Most of the farmers were not sure about adopting drought resistant crops and replacing the oxen with donkeys. This compromised with their tradition where they used traditional seeds and keeping of oxen for their farm use. With the liberalization of the economy, the government should probably privatize the agriculture sector to cater for the much needed services by farmers. This could improve the attitude of farmers and possibly turn the wheel around in favour of high yields in the areas where the research was conducted and benefit the community and Zambia as a whole.

CHAPTER ONE

1.1 INTRODUCTION

Many educational programmes for farmers are devised and run by urban-based and urban oriented staff of formal organisations (Hartmust, 1989). The perception of farmers' educational needs may not be in line with the farmers own perception and hence may not be perceived by farmers as relevant to them. A link between the urban-based and the farmers (small-scale) makes easy access to information on what the farmers need in the case of Agriculture production.

In an important sense, Agricultural development is a major learning experience. Factors in the socio-cultural environment that improve the farmers knowledge and technical competence include experiences as migrant labourers and radio farmers' education programmes that teach specialised functional skills.

Extension programmes are not worth the name if there are no profitable innovations to extend to or if the innovations that exist are doubtful or with marginal profitability (Bose, 1961). Nevertheless, it is clear that as an agricultural system expends its technical base, the need for sound extension advice, supported with profitable inputs tends to be a critical limiting factor.

The extension programme that can be expected to have a development impact is one that has a strong mobile staff which is well instructed in a limited number of crop activities and has profitable innovation (Hart, 1989). Useful practical knowledge was soon available, but as in Zambia, the means of imparting it to farmers and getting it

into effective use lags far behind. Government staff are not enough both in numbers and understanding the ways of evoking response, where incentives are still weak.

In the colonial period, the central axis of colonial government extension programmes continued to be crop and livestock production, within a strong framework of soil and water conservation. The extension approach was changed from the stern paternalism of the earlier period to a benevolent paternalism in which African farmers were not merely told to do what the extension officer considered to be good for them, but were told why it was good for them (Makings 1967: 63). Major emphasis on quality strengthened the regulatory character of the colonial extension service. Regulation of the quality of export crops and control of animal diseases may have been necessary. Other regulations like the requirement of self sufficiency in food staples in each district and of tie-ridging even when land was plentiful, probably were not and their enforcement was almost hopeless.

Extension work is fundamentally educational. It is based on the belief that new skills and techniques exist that will increase agricultural productivity if farmers will learn them. The expanding government sponsored development programmes which started before independence have tended to increase the hortatory and service activities of the extension service. Whether in and out growers system for tea or tobacco, in group farming, in ranching or in settlement schemes, the extension service has work of educating to do.

Good agriculture extension requires comprehensive knowledge and skills, detailed analysis and forward looking approach to strategy, methodology and the planning of extension work. To achieve its aims it employs the methods and results of various academic disciplines such as sociology, psychology and education, but it has nevertheless become a specialised subject and profession in its own right. (Lionberger, 1960).

The more complex the innovation the greater the need for the educational input of the extension service. On the other hand, the more profitable the new skills appear to farmers the more willing they are to acquire them.

1.2 STATEMENT OF THE PROBLEM

The Zambian government attaches great importance to agriculture as a sector which could redeem the country out of its economic upheavals. To this effect, the government has put in place several programmes to revamp and improve the agricultural sector both at peasant and commercial farmers' levels.

One of the many government initiatives towards improving the quality of farming in the country is the massive training of extension workers. Extension workers cater for both commercial and peasant farmers but more so for peasant farmers who are in the majority. The government attaches a lot of importance to these officers because they improve farming methods at grassroot level primarily for the purpose of attaining household food security. Hence promoting food security in the country.

This study investigated a number of issues patterning to agricultural extension in the eastern part of Choma District (Simaubi area), particularly how agricultural extension workers carried out their duties: how often they were in contact with the farmers and the response of the farmers towards the technical advice given to them by the agricultural extension workers.

Choma is in a central place, that is in regards to the areas where most farmers have settled. In this case it was supposed to be one of the highest agriculture producers in the country. One of the prominent reasons why there was no efficient agricultural production could be that there was little or no contact between the agricultural extension workers and the farmers, as well as lack of adoption of recommended farming practices by most farmers as well as lack of adoption of recommended farming practices by most farmers.

Despite the numerous efforts by the government to inject funds, technology and labour such as that of extension workers, the results showed no improvement in the quality and quantity of yields, especially by peasant farmers. It was this situation that prompted the researcher to investigate the services offered by extension workers and the factors which constrained farmers from adopting recommended farming practices. The researcher believed that these could have been the causes of the insufficiency of production (agriculture). However, a number of reasons for poor performance had been advanced in different forums, these among others included unpredictable weather patterns: these referred to drought spells and floods; Inadequate and untimely delivery of farm inputs; rigidity and negative attitude towards change by

farmers; and dependency and preference to free relief inputs due to high prices pegged on farm inputs; poverty situation of farmers which led to behaviours such as selling the farm inputs (in case of free inputs or those given on loan) and using the field product (output) as seed, and also the use of fertilizer residue for the next growing season, had also been cited. The researcher therefore wished to find out the causes of poor performance among the farmers in relation to the services offered by extension workers in the said areas.

1.3 PURPOSE OF THE STUDY

The purpose of the study was to investigate the factors that constrained most peasant farmers in the eastern block of Choma district, from adopting recommended farming practices, and also how agricultural extension workers carried out their duties: how often they were in contact with the farmers, their methods of approach and the advice they gave farmers. This study also looked at the farmers response towards the technical advice given to them by the agricultural extension workers. It also investigated problems faced by extension workers in the field. Lastly it investigated why there had been no abundance of agricultural products when the area had a lot of farmers settled in the vicinity of Choma urban where they could easily access expert services.

1.4 OBJECTIVES

- i) To determine the quality of extension services offered to the farmers in the mentioned areas.

- ii) To find out obstacles faced by extension workers in their interaction with farmers.
- iii) To determine the farmers' knowledge and use of recommended practices.
- iv) To determine the adoption rate of recommended farming methods.
- v) To find out the farmers response towards the technical advice given to them by Agricultural extension workers.

1.5 ASSUMPTIONS OF THE STUDY

This study assumed that:

- a) Extension workers lacked commitment to their work thereby denying the farmers the much needed information on agriculture.
- b) Unfavourable government marketing policies made the farmers develop a negative attitude towards innovations.
- c) Innovations were expert oriented rather than farmer oriented i.e. imposition of innovations rather than farmer participatory innovation.
- d) Poverty was one of the factors causing a lag in the adoption of recommended agricultural practices.
- e) The use of inappropriate extension technologies such as innovations which were socially, economically, culturally and ecologically unacceptable not accessible and available.
- f) Low formal educational levels of farmers.

1.6 RATIONALE OF THE STUDY

The Zambian government attaches much emphasis on food security for its people, of whom peasant farmers are the majority. For the nation to have enough food there is need for both peasant and commercial farmers to produce qualitatively and quantitatively. Therefore this research sought to stress out the factors constraining farmers from using the recommended practices in relation to the services they got from extension workers and also find out problems which the extension workers faced while in the field, that is factors that hindered the extension worker from carrying out his duties efficiently and effectively. In this case all the required resources which were very vital to the extension worker were identified through this research. The results of this study, would provide Ministry of Agriculture, Food and Fisheries (MAFF) information on the operations of extension workers.

The results of this research would be of prime importance and useful to the farmers, extension workers, policy makers and non-governmental organisations, who are the chief financiers of most agricultural projects in Zambia currently.

1.7 LIMITATIONS OF THE STUDY

Choma District is along the maize belt and most of the inhabitants were either commercial or peasant farmers. There were therefore 49 camps in Choma peri-urban alone. A sample of 14 agricultural camps would have been more representative, but due to limitations in time and finance, the sample consisted of three camps. The other limitation was the fact that most of the peasant farmers were unable to read and write. Therefore oral interviews were conducted.

CHAPTER 2

LITERATURE REVIEW

Agricultural education of the right kind is indispensable for economic progress in any country. Education is both a means and a goal, and agricultural education is no exception (Dunn, 1978). However with the emphasis on development, it is more likely that agricultural education will be viewed as a means rather than a goal, and resources will be allocated to it on this basis. Agriculture must have leadership, teachers, and ideas. It must investigate the experiment, translate findings into action, motivate farmers, advise government, understand the relation of agriculture to the rest of the economy, and be ever mindful that human beings with values of their own are involved in the whole process.

All over the world, changes in the environment and living conditions are accelerating. Knowledge and information which individuals need for their livelihood are expanding and proliferating at the same pace.

Extension can be defined in general as follows:-

It is the process where by the extension worker tries to motivate his extension partner and to give him the capability with the help of encouragement and ideas to act to solve his acute problems. (Hart, 1979).

The people concerned acquire a better insight into the network of the problems and recognise the alternative solutions available. They gain from this both the incentive to embark on problem solving and the direction to take through the agency of extension, otherwise untapped human resources are set free and utilised.

The relationship between the extension worker and the partner that is necessary to achieve this should be reciprocal, the extension worker being committed to the welfare of his opposite number. In this relationship, the freedom of decision making and the personal responsibility of the partner must be preserved in full, because he alone must ultimately bear the responsibility for the consequences of his actions.

SPECIAL CHARACTERISTICS OF AGRICULTURAL EXTENSION WORK

Agricultural extension should fulfill four main functions:

to act as an intermediary between agricultural development institutions and target groups. In this way the latest results of research are made available to the farmers in such a way that they can be understood and applied and conversely, the need for solutions to particular agricultural problems is reported back to the research institutions; to transfer and adapt the achievements of existing institutions to the abilities and potential of the target population of small farmers. In the medium term this can result in what is being offered by these institutions being modified to meet the needs of the target group of small farmers; the formal creation of development and other services by helping to structure institutions. New institutions, whether state organised or self help in institutions, influence the whole agricultural production system (this applied also to organised advisory work); and mobilisation, in the form of motivating and qualifying disadvantaged groups that results from specific attention to problems and concrete help, so that they attain independent action and self help. This counseling taps an otherwise unused source of development-promoting strengths. This kind of mobilisation also creates a pre-condition for the dissemination of innovation in the rural environment (Charnedly, 1973).

Chandly says:

We can justify agricultural extension as an institution if it is appreciated that a lack of knowledge, low motivation and undeveloped practical and social skills can be just as serious barriers to development as undernourishment, limited production factors or absence of infrastructures. (pp 23-25).

Agricultural extension becomes the obligation of the state, first because of its duty to create social justice and social equality and secondly because of inadequate supply of food and further development aims cannot be attained unless the mass of agricultural producers can be activated.

It is in the job of agricultural extension to help in a planned and organised way where independent solutions can no longer be achieved and other development measure (price policy, improvements to the infrastructure etc.) are insufficient to enable the target group to find timely solutions to their problems. The aim is therefore to counter a further impoverishment of the people engaged in agriculture and to improve their living conditions.

The formulation of objectives should not be restricted just to the introduction of innovations in techniques of production, even in the setting up phase of agricultural extension services in developing countries (Bose, 1961). The broadening of activities to management, socio-economic and institutional affairs, thus widening the scope of extension from purely agricultural to a rural advisory service, has better prospects of success with small farmers in particular because it corresponds more to their actual circumstances. The small farmers have simultaneously or at certain times, various jobs, such as trader, craftsman, fisherman, wage labourer, landlord or tenant. The

woman in the rural community is involved not only in the house hold and bringing up children but also in working in the fields and in trade and crafts. Young persons, too, can contribute to the family income by agricultural and non-agricultural work. Thus agricultural extension in this sense of comprehensive rural counseling, provides support for target groups and embraces the following areas of activity:

Techniques of production

The introduction of new techniques of production and communication of essential knowledge and skills to improve the subsistence base, to produce marketable surpluses and to achieve a higher income. In the long term, the sources of income and above all, soil fertility have to be maintained.

Management

The improvement of farm organised by the efficient use of existing factors of production;

The improvement of nutrition and the running of the house hold discussion of opportunities for non agricultural employment for members of the family; and lastly the promotion of organised co-operation and other means of raising the capability of self help agricultural extension in the sense of comprehensive rural counseling, is not just a programme to propagate factual knowledge. It is clear in the context of technical cooperation project that development programmes are also always political programmes. Thus for agricultural development and advice, agreement and active support have to be sought on two sides, from the people who are to receive assistance

and from those bearing the political responsibility for underwriting the development aid programmes (Rodgers, 1983).

Extension measures, seen from the political point of view, are only conceivable as foundation programmes. Understanding cannot be prescribed. Thus it is shown again that serious breaches of the partnership principle are a frequent cause of failure. It has often been documented that:

Measures carried out without the agreement or understanding of the recipients meet with lack of interest, mistrust or rejection;

targets propagated by the state that conflict with individual interests of the farmers cannot be implemented or, if they are imposed by force, aggravate the overall problem situation;

Well-intentioned compulsion gives rise to counteraction and destroys the essential basis of trust between adviser and target group; and

many extension organisations have false notions of the conditions, problems and needs of the farmers since mutual communication is not cultivated. This can lead to misguided extension initiative and measures (Rodgers, 1983).

If we consider current extension programmes and the solutions offered from the point of view of the farmers, the following typical weakness can be seen.

The labour input requires a considerable reduction in previous "free time" time which however is only agricultural "freetime" and in which other necessary activities take place (e.g. house building repairs, a second job production extra income and social obligations); new crop and new production methods are not adapted optimally to the

ecological conditions; The economic benefits exist only on paper; and the innovations are beyond the scope of action of the target group or are not acceptable from a socio-cultural and psychological point of view (Jones, 1967). However, even the partner centred adviser often faces the difficulty that his objectively sounded advice falls on deaf ears, because the people he is addressing have no problem awareness. Thus he has the difficult task demanding a good deal of patience, of first creating an awareness of problem in the target group. Once it has been created, an interest and a need for advice can be developed.

But while adopting for this approach, the advisor should never rashly assume that his own perspective of problems and the recommendation are automatically correct without first having heard and examined the counter arguments of the farmers concerned. In many cases the farmers have well-founded reasons for rejecting an innovation and the advisor must examine them in detail and with an open mind if he himself is to appreciate their justification for rejection in a specific situation (Bose 1961).

Partner centre extension work also proves to be the right fundamental approach to agriculture extension in developing countries in particular. It is true that the work of agricultural development can scarcely ever be accomplished through the input of extension alone; extension in developing countries is almost always dependent on other supplementary measures, but in specific problem situations where there is a lack of understanding and motivation or deficiencies in knowledge the act of counseling cannot be replaced by any other development measures (Hawkins, 1988).

APPROACHES TO EXTENSION

By approaches to extension we understand the fundamental conceptional and functional method of extension adopted to fulfill its aims especially in the planning phase Two. Basically different methods can be distinguished namely the production technology approach and the problem-solving approach. Logical consequences of the problem-solving are: Advice directed specifically towards target groups and subgroups and the development of approaches to problem solving which are tailor-made for their problem situation; active participation of target groups and sponsoring institutions in the planning, implementation and evaluation of extension measures; the planning and implementation of development and extension projects having to do justice to the requirements of participation and not pre-empting important decisions. (Bose 1961).

THE PRODUCTION TECHNOLOGY APPROACH

Since the aim of agricultural extension is to help alleviate the problems of the rural population by means of targeted inputs, it must first register and comprehend their problem situation and then be guided by it. This may sound simple, but it is frequently ignored. Rural development policy "from above" that represents or purports to represent national and macro economic interests, often tend to formulate agricultural problems and aims theoretically and without any intimate knowledge of the circumstances of the rural population. (Mwila, 1986). This is done in the belief either that there is already sufficient information or that there is no time or way of procuring more. In such cases agricultural extension is allotted the task of directing

people to pre-formulated "obvious" targets (e.g. increasing production) and offering them or even imposing on them prescribed solutions. This kind of approach is rarely successful and mostly has an undesirable side which then cast doubt on the actual "success". An approach like this can in no way be reconciled with our interpretation of extension.

It is therefore important to consider the problem solving approach as an alternative. If problems are registered and formulated not just abstractly and from the stand point of the national economy (small farmers as an appendage to production data, the area under cultivation, financial import, etc.) but from the perspective of the population as well, the chances of finding viable solutions in specific situations are greatly increased. The advisor thus acquires the difficult role mediator between the conflicting perspectives of the institutions and the target groups, trying to create in both new forms of problem awareness. (Chandly, 1973).

THE PROBLEM-SOLVING APPROACH AND ITS CONSEQUENCES

With the problem solving approach it is important to remember that the analysis of the case and the proposed remedial action do not depend on the level of knowledge and information of the planners alone. Small farmers, can, for example, be well aware of the production elasticity of their farms and can evaluate the social consequences of the planned measures. The planning basis becomes broader and the planning uncertainties become fewer if the target groups problems and their own perception of them are taken into account and made the starting point for development initiatives. (Chandly, 1973).

When planning extension, the definitions of targets and problems are interrelated. Both have to be established by means of a situation analysis. (Hartmut et. al. 1989). Targets are the circumstances that are regarded as worth striving for and which people would like to attain, and conversely the avoidance of undesirable circumstances can also represent a work while target. The obstacles and adverse circumstances that prevent a target being reached constitute the problems.

A careful definition of problems directly reveals the type of approach to adopt and is an indirect indication of the action that should be taken. With the problem solving approach, it is this definition of problems that is the cardinal point for the planning and implementation of the extension project, not the definition of targets or the decision on the measures to be applied - both of which have been the major consideration in the past precisely because in most cases more than half the solution is contained in the way the problem is defined. One should not commit oneself prematurely to particular problem definition.

Hartmut et al (1989) says:

It is advisable to postulate as many alternative definitions of problems as possible, so that one can finally be selected that corresponds closely to the perceptions of the extension partners and at the same time offers practicable solutions (e.g. water shortage - new wells compared with other possible definitions and solutions, such as limited availability of water-water saving techniques (pp. 14-18). Since the structure of problems is usually complicated, it is advisable to look for a core problem and to work from this point towards isolating causes and consequences (pp. 14-18).

CHAPTER 3

3.0 METHODOLOGY

Various aspects of methodology are summarized under separate sub-headings of population, instruments, and data collection.

In order to collect data aimed at investigating the services offered by extension workers and the factors which constrained farmers from adopting recommended farming practices, the researcher employed both the qualitative and the quantitative methods (Merriam, 1995). The qualitative method involved the researcher collecting information expressed in words and gestures while the quantitative method is where the research analysed collected information numerically. The researcher opted for these methods because the nature of the research undertaken demanded the collection of both qualitative and quantitative data. This entailed questionnaires being administered and interviews being carried out with farmers and extension officers in systematically selected farmer groups in Choma district.

3.1 POPULATION

The population to be studied consisted of 47 farmer groups in selected agricultural camps. Each group consisted of 20 members meaning that total number of 947 farmers formed the study population.

In addition, staff population consisted of seven (7) people. The following staff formed the study population: the chief agricultural officer - farm management, three

camp extension officers, two group promoters and one District Co-ordinator. The total population, therefore was 947.

3.2 SAMPLE POPULATION

74 respondents formed the sample of the study, of which 70 were farmers and 4 were members of staff.

A simple random sampling was used to provide an equal opportunity of selection to each farmer in the sample population. Equal opportunity or same probability enabled that each unit and each combination units to be drawn an equal number of times. (Mucller et al 1977). A table of random numbers was used.

3.3 DATA COLLECTION TECHNIQUES

The study relied on interview as the principle method used in data collection. The choice was influenced by the reason that most farmers were unable to read and write. However, this handicap helped much and allowed for supplementary questions to clarify responses.

Questionnaires were also used. These were administered to agricultural officers.

3.4 DATA ANALYSIS TECHNIQUES

Data was analysed manually using tables of frequencies and graphs.

CHAPTER FOUR

4.0 RESEARCH FINDINGS

The following is a presentation of the research findings from the data collected.

4.1 Distribution of respondents by villages

Responses	Frequencies	Percentage
Malambo (Dundwa camp)	19	27
Namwalinda (Mapanza camp)	19	27
Sichimenze (Simaubi camp)	13	19
Chilumbwe (Muyuni camp)	19	27
Total	70	100

A total of 70 respondents were interviewed from the four selected villages. Out of these, 27% came from Dumdwa camp in Malambo village, 27% from Mapanza camp in Namwalinda village, 27% from Muyuni camp in Chilumbwe village and 19% from Simaubi camp in Sichimenze village.

The distribution shows an equal representation of farmers from three villages and less representation from one village. This was because the population of farmers in Sichimenze village was less than that from other villages.

4.2 Distribution by sex, age, marital status, and education

Responses	Frequencies	Percentage
Male	62	89
Female	8	11
Total	70	100

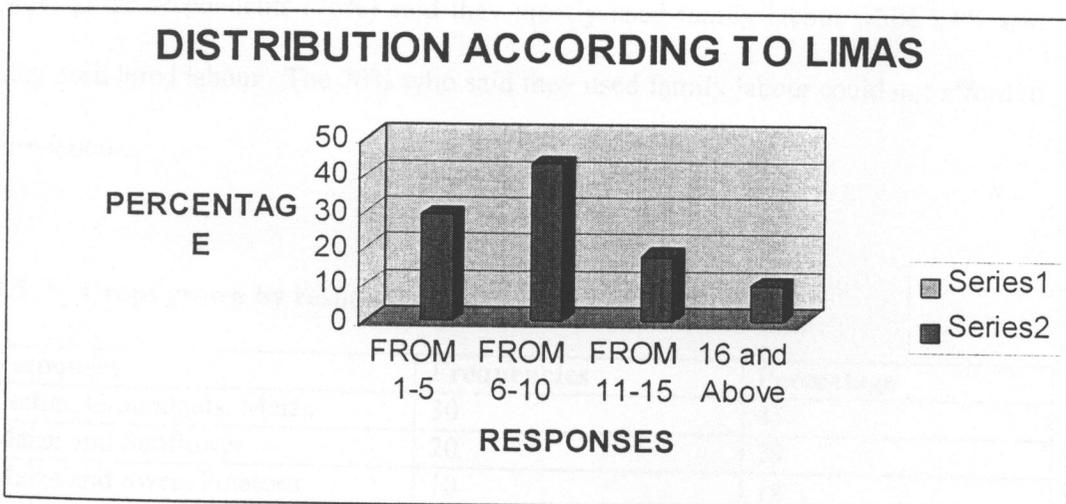
The researcher found out that most of the respondents interviewed (89%) were male whose ages ranged between 20-55 years.

Only 11% were women. Most of the respondents (54%) were married. However, 23% were single, 13% divorced and 10% widowed.

The academic qualifications of the two respondents were as follows: 46% attained grade 7, 19% grade 9, 17% grade 12, 6% standard 5 and 12% standard 6.

The results revealed that most of the respondents had low academic qualifications (83%) ranging from standard 5 and 6 to grade 7 and 9. Only 17% attained grade 12.

4.3 Land preparation



The responses showed that most of the respondents (43%) cultivated between 6-10 Limas. (29%) cultivated between 1-5 limas, 18% between 11-15 limas and only 10% cultivated 16 and more limas. This revealed that most respondents did not utilise the expected limas of between 11-15. This could be attributed to late preparation of land

for ploughing. Most respondents started their land preparation late 40% in October and 39% in November. The recommended period of land preparation was may. Only 15% of the respondents did their land preparation in May.

4.4 Labour Used in the Field

Responses	Frequencies	Percentage
Family Labour	53	76
Hired Labour	17	24
Total	70	100

Seventeen percent (17%) of the respondents indicated that they used oxen for labour in their fields while 83% indicated that they did not own any oxen due to corridor disease which had wiped out their cattle.

Most of the respondents (76%) said they mostly used family labour while 24% said they used hired labour. The 76% who said they used family labour could not afford to hire labour.

4.5 Crops grown by respondents

Responses	Frequencies	Percentage
Cotton, Groundnuts, Maize	30	43
Maize and Sunflower	20	29
Maize and Sweet Potatoes	10	14
Sesbania/Maize	2	3
Cassava/Maize	2	3
Millet/Maize	6	8
Total	70	100

Forty three percent (43%) of the respondents indicated that they grew a combination of cotton, maize and groundnuts, 29% indicated maize and sunflower, 14% and sweet

potatoes, 3% indicated maize and sesbania sesban. Another 3% indicated cassava and maize and 8% indicated millet and maize.

The conclusion here was that most farmers still stuck to growing the traditional crops of maize and groundnuts. This was despite the drought spells in the province. Very few farmers had adopted the growing of drought resistant crops like cassava, sesbania sesban and millet. This showed rigidity of most of the respondents in adopting the recommended drought resistant crops. Responses in table 4.11 also show that most farmers 83% used recycled maize as seed and only 17% used the recommended hybrid seed for planting. The researcher therefore concluded that the respondents had not adopted the recommended seed to be used. This was attributed to poverty by most respondents. They said they could not afford the recommended seed.

Findings from the interviews conducted, however revealed that most farmers who could not afford the recommended seed were availed this seed on loan. Unfortunately, instead of using the seed to plant in their fields, they sold the seed and other inputs like fertilizers for money to sustain themselves, and instead used under hand methods.

4.6 The Yield

Despite the fact that 71% indicated that they accessed inputs on loan and only 29% did not (as shown on table 4.12 of appendix (i)), only 7% reported to have had very good yields. Fourteen percent (14%) reported good yields, 29% reported fair yields and half of the respondents (50%) reported poor yields. The poor yields could be

attributed to, as alluded to earlier on, poor and under hand methods of farming, poor seed and lack of correct usage of in-puts like fertilizer. Responses in table 4.13 show that most of the respondents (57%) used 'digging holes' method of farming, which is the traditional method of farming and which was not recommended. Only 26% and 17% used the recommended methods 'line planting' and 'behind the plough' respectively. These findings revealed the extent to which respondents were rigid to adopting the recommended practices.

The responses further revealed that most of the respondents (84%) stored their farm implements after use, using out door methods instead of the recommended indoor methods. Only 16% used the recommended storage method.

4.7 Attendance to farm group meetings and field days

Responses	Frequencies	Percentage
Yes	70	100
No	00	00
Total	70	100

All the respondents (100%) indicated that they attended these meetings. They however lamented that extension officers held them after a long time, and so there was no consistence in what they learnt.

On whether the respondents benefited from the advice and information given in these meetings, 29% of the respondents indicated that they did while another 29% indicated to the contrary. Forty two percent (42%) indicated that they did not receive much

benefit. This they said was due to the fact that extension officers did not make regular visits.

It was further revealed in the responses from extension officers (67%) that preparation for topics was mostly done by district specialists and field officers. Only 33% of preparations was done by NGOs and farm group members the conclusion here was that topics for discussion were imposed on the respondents. Responses on table also show that most of the respondents (86%) did not participate in planning and evaluation of group activities. This could explain why there was apathy in the adoption of the recommended practices and methods of farming by most farmers.

Responses from field officers, revealed that extension officers conducted periodical field days and method demonstrations for farmers, but that the attendance to these activities was pathetic. The revelations were as follows: Between 1994 and 1995, only 35% of the total number of 920 farmers attended field days and demonstrations conducted on growing *sesbania sesban* and 'all crops field day'; between 1996 and 1997 only 3% of the farmers attended field days and demonstrations on sustainable agriculture and Agro forestry tree planting; between 1998 and 1999, only 13% attended field days and demonstrations on crop rotation and sustainable agriculture; between 2000 and 2001, 17% attended field days and demonstrations on animal traction using donkeys, and citrus planting; and in 2002, 32% attended field days and demonstrations on sustainable agriculture, pit hole farming and organic pot holing.

4.8 Modern Practices of farming respondents felt were better than traditional methods

Responses	Frequencies	Percentage
Conservation Farming and sustainable Agriculture	60	86
Crop rotation	10	14
Total	70	100

Sixty percent (60%) of the respondents indicated that conservation farming and sustainable agriculture were better than traditional methods. Only 14% preferred crop rotation.

Concerning the adoption rates of recommended farming practices by farmers, 54% of the total 920 farmers adopted the method of pot holing, 22% crop rotation, 5% use of drought resistant crops, 8% use of disease resistant animals (donkeys) for traction and 11% winter ploughing. This showed low adoption rates. Field officers attributed the failure by farmers to adopt recommended farming practices to lack of knowledge 33%, lack of proper farming equipment 33% and poverty 33%. The farmers, however, attributed their failure to adopt modern farming practices mostly lack of inputs (71%).

4.9 Suggestions on how agriculture could be improved in respondents' areas

Responses	Frequencies	Percentage
Giving cattle loans to farmers	30	43
Introduction of goat schemes and poultry production	08	11
Introduction of fish farming	05	07
Localised sell of farming implements	18	26
Enhancing the use of drought resistance crops	04	06
Replacement for cattle		
Total	70	100

Forty three percent (43%) of the respondents indicated that improvement could be achieved if cattle loans to farmers were re-introduced; eleven percent (11%) preferred the introduction of goat schemes and poultry production; 7% preferred the introduction of fish farming; 26% preferred localised sell of farming implements; 6% preferred enhancing the use of drought resistant crops and only 7% indicated enhancing the use of disease resistant animals (donkeys) for traction to replace cattle. The researcher's conclusion on these findings was that the largest percentage of respondents (43%) preferred to stick to keeping cattle despite the cattle diseases that constantly attacked and killed most of them. Farmers' next preference was the introduction of the sell of farming input and implements locally to avoid transport costs. The researcher also discovered that very few respondents (7%) were in favour of adopting the use of donkey, to replace cattle and very few were in favour of enhancing the use of drought resistant crops. This showed rigidity to change by most respondents.

CHAPTER FIVE

5.1 Discussion of the Results

The following is the discussion of the results based on the findings on the study in the previous chapter.

Quality of Extension Services Offered to Farmers

The findings of the study show that the extension services offered to the farmers in the areas of study were not adequate. This followed revelations that only one extension officer catered for 4 camps consisting of 500 to 950 farmers. This was too large a number of farmers for one person to manage. As a result extension services in these areas were not regular and consistent in conducting meetings and other agricultural programs.

Another problem that deterred effectiveness and efficiency by extension workers was lack of transport to the farming areas. Most extension workers interviewed lamented at the long distances they had to cover on bicycles. The use of bicycles to cover large areas was not feasible. They also complained of poor attendance of farmers to meetings and other agricultural programs.

Farmers' knowledge and use of recommended practices

Most of the farmers indicated that they had received beneficial knowledge concerning recommended farming practices. However, they failed to put most of it into practice because they lacked the recommended agricultural implements. They could not afford inputs like fertilizers, hybrid seeds and chemicals.

Some of the innovations needed a lot of labour, and so most farmers failed to embark on them because they relied only on family labour and could not afford hired labour, for example the use of organic manure instead of chemical fertilizer.

Obstacles faced by extension workers in their interaction with farmers

Extension officers faced a number of obstacles in their interaction with farmers. The most prominent problem faced was poor attendance to meetings and other agricultural programs.

Most farmers did not attend field days and demonstrations. Another problem faced by extension officers was lack of teaching aids and recommended tools for carrying out practical demonstrations on the recommended methods of farming. Most of the teaching was therefore theoretical. This could have been a contributing factor to the lack of adoption of recommended farming practices by most farmers, since most of them were unable to read and write and the most effective method of teaching for them would have been through demonstrations.

Culture was also an obstacle. This was mostly in the area of cattle rearing. Most farmers were traditional cattle keepers and to make them change to other live stock was very difficult.

Extension workers found it difficult to make the farmers accept the growing of drought resistant crops in recommended quantities because farmers were rigid to change. Transport was another obstacle faced by extension workers.

Adoption rate of recommended farming practices

The findings showed that adoption rates of recommended farming methods were poor. This was attributed to rigidity among most farmers to change. Most farmers failed to adopt the use of disease resistant animals like donkeys for traction to replace cattle. This was because traditionally Tongas derive their pride and success from cattle keeping. The other reason cited was that they had not learnt behaviours and moods of donkeys and therefore did not feel safe to use them. The use of hybrid maize for planting as recommended was also said to be too expensive for them to afford.

The adoption of drought resistance crops was also low. Farmers still preferred growing traditional crops like maize, groundnuts and sweet potatoes instead of cassava, millet and sesbania sesban which are drought resistant. Reasons given for this were that it was difficult to find markets for the recommended crops and that traditional crops could be easily marketed and consumed.

Due to poverty, most farmers resorted to selling inputs accessed through loans meant for use in their fields for money to sustain them, for example fertilizers and seed. Instead they used recycled seed and applied insufficient fertilizers to their crops, which resulted in poor harvests. Another revelation was that some farmers were jittery about accessing inputs on loan for fear of harassment in the event that they failed to pay back the loans. This mostly happened in case of poor rainfall resulting into poor harvests.

Most farmers interviewed expressed fear to take risks of adopting new techniques of farming due to lack of proper method demonstrations by the extension officers.

The findings and discussion of the study revealed that most of the assumptions of the study had been sustained.

The assumptions that extension workers lacked commitment to their work, thereby denying the farmers the much needed information was not however sustained. This was because the factors that led to lack of enough interaction were discovered as lack of transport, large coverage areas by extension workers and lack of tools for demonstrations, among others, and not because of lack of commitment to their work.

Unfavourable government policies as having made the farmers develop a negative attitude towards innovations, as an assumption was sustained. This followed sentiments by most farmers in the findings that they were not comfortable with adopting drought resistant crops because of lack of sure markets for such crops, following the liberalised market policies of the government.

Innovations according to most responses in the findings, were expert oriented rather than farmer oriented. This assumption was therefore proved right.

Poverty as one of the causes of the lag in the adoption of recommended agricultural practices was also sustained as it was revealed that farmers sold inputs got on loan for

money to use for sustenance resulting in using under hand methods of farming that affected the quality and quantity of their yields.

The other assumptions that were sustained were the use of inappropriate technologies which were socially and culturally unacceptable for example, the introduction of disease resistant animals like donkey to use for traction to replace oxen and the growing of cassava to replace maize.

Low formal educational standards by most farmers was a hindrance to learning theory work, and therefore most farmers depended on demonstrations, which unfortunately could not be adequately carried out due to lack of demonstration materials.

CONCLUSION

From the fore going discussion on the research findings, the researcher's conclusion was that the failure of farmers to adopt the recommended farming practices was due to several reasons.

The most prominent one was the lack of adequate interaction of farmers with agricultural extension officers. This resulted into farmers' enadequacy in knowledge and skills of recommended methods and practices. Farmers' attendance to meetings and demonstrations were poor. This was attributed to lack of consistence by extension workers; farmers complained that visits by extension workers were irregular and took long to take place. This discouraged the farmers from getting fully involved in agricultural activities. The lack of tools for use in demonstrations and

visual aids compounded the situation because most of the farmers, it was learnt, were unable to read and write, rendering theory ineffective for them.

Rigidity to change on the part of farmers was another concern. Most of the farmers were uncertain about adoption of drought resistant crops to replace the traditional crops citing lack of markets. They were reluctant to adopt donkeys to use for traction to replace cattle. This was mostly because traditionally these farmers are cattle keepers and a lot of culture and importance is attached to cattle. Therefore the extension workers must find ways of enhancing both cattle keeping and donkey keeping.

Poverty was also mentioned as one of the contributing factors of poor adoption of recommended practices of farmers. Inputs got on loan or as hand outs were sold and money used for their sustenance. Instead recycled inputs for example recycled seed and insufficient fertilizer (because most of it is sold) were used.

The failure of farmers to adopt the recommended farming practices led to harvests that were poor in both quality and quantity.

RECOMMENDATIONS

The study recommends the following:-

The areas that the extension workers covered to reach and demonstrate recommended farming practices to the farmers were too large for them to manage, therefore it would be more effective if the extension workers were assigned to manageable areas.

The services offered by the extension workers to the farmers were not adequate in that they had no proper facilities to enhance their quality of services. The extension workers lacked facilities like transport for them to be disseminating their agricultural knowledge to the farmers on time; the extension workers needed transport facilities like motor cycles instead of bicycles, this is so because motor cycles are faster than bicycles to enable them carry out their duties on time and effectively. Extension officers should also be fully equipped with the correct tools for demonstrations. Farmers learn better when they are taught practically. This helps them to see, understand and practice the recommended methods of farming.

There should be demonstrating areas where farmers are taken to see the effect of using newly recommended practices and their benefits e.g. use of donkeys in place of ox-drawn power, use of other cereal crops which are resistant to drought in place of maize.

The Ministry of Agriculture should also involve the NGOs as outside change agents to reinforce the use of recommended farming practices, to break the monotony of farmers dealing with extension officers only. The Ministry of Agriculture should allow the farmers to fully participate in decision making, planning, implementation and evaluation of the agricultural programme. This will enable the farmers to feel responsible and committed to the agricultural programmes. That way the extension workers will be able to meet the farmers problems which hinder their agricultural progress.

Lastly, steps to motivate the extension workers must be taken. These include improving their conditions of service like good accommodation, increased salaries and allowances and providing them with the teaching aids to make their job easy and effective.

Lack of adoption of new farming practices may not be the only cause of low production of farm produce. Therefore further studies into the other causes of low productivity both qualitatively and quantitatively could be undertaken.

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6.0 APPENDICES

Appendix (I): Data collection instruments

- (a) Farmers' interview guide
- (b) Chief extension and training officer's, Interview guide
- (c) Camp extension officers' questionnaire
- (d) Letter of permission to carry out research

THE UNIVERSITY OF ZAMBIA

SCHOOL OF EDUCATION

DEPARTMENT OF ADULT EDUCATION AND EXTENSION STUDIES

TO BE FILLED IN BY FIELD OFFICERS

The purpose: The purpose of this research is to assess factors which constrain farmers from adopting recommended farming practices despite having access to extension services. The researcher, would therefore, request you to respond to the questions as honestly as possible. The researcher guarantees that your responses will be kept confidential, hence no need to write your name.

INSTRUCTIONS

1. For each question, please tick [] in appropriate box (es).

1. Sex [] Male [] Female

2. Age (i) 20 – 35 years []

(ii) 36 – 45 years []

(iii) 46 to 55 years []

(iv) above 56 years []

3. Marital Status (i) single []

(ii) married []

(iii) widow []

(iv) others []

4. Level of formal education (Breakdown into grades)

(i) 1-7 – Lower Secondary []

(ii) 8-9 – college []

(iii) 10-12 - college []

5. Position held (i) Camp Extension Officer []

(ii) Block Extension Officer []

(iii) Group Promotor []

(iv) District Coordinator []

5. Do you conduct demonstrations/field days with farmers' groups?

(i) Yes []

(ii) No []

7. If yes, indicate

GROUP NAME	TYPE OF DEMONSTRATION	YEAR CONDUCTED	PLACE HELD	ATTENDANCE

8. During meetings or trainings, who comes up with topics or contents to be discussed?

(i) District specialist []

(ii) field officer []

(iii) group executive []

(iv) group members []

(v) other..... []

9. Are farmers' groups able to solve their own problems?

(i) Yes []

(ii) No []

10. If No, why?.....

11. How many farmers have adopted recommended practices?

Indicate numbers []

Number of farmers

e.g. Winter ploughing

a.

b.

c.

12. Why do you think farmers fail to adopt recommended farming practices?

a.

b.

c.

13. Are farmers' suggestions or plans considered by your supervisors and policy-makers?

(i) Yes []

(ii) No []

14. If yes, indicate suggestions/plans considered.

.....

.....

15. If No, indicate suggestions/plans not considered.

.....

.....

15. Do farmers appreciate your services?

(i) Yes []

✓ (ii) No []

17. If No, why?.....

.....

18. What suggestion would you like to make to improve agriculture programmes?

.....
.....
.....
.....

Thank you very much for your mutual co-operation

LWEENDO TOM MUNGALA
UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION
DEPARTMENT OF ADULT EDUCATION AND EXTENSION STUDIES
P. O. BOX 32379
LUSAKA

INTERVIEW GUIDE (Chief extension and training officer)

1. Is there any extension and training officer at district level?
2. What is his/her field of study?
3. Did he/she undergo Agricultural extension training?
4. For the past 5-10 years, what have been qualifications for extension and training methodologists.
5. According to the new structure, what qualifications should one have to be an extension and training methodologist/
6. In your opinion, do you think the extension and training methodologists are competent enough to carry out or support extension work.
7. Are there some future plans to incorporate social courses like Agriculture extension in training packages?
8. Do you have some suggestions/recommendations on how to revitalise agricultural extension?

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INTERVIEW GUIDE FOR FARMERS

1. How old are you?
2. What is the name of your village?
3. What camp do you belong to?
4. Are you married?
5. What level of education did you attain?
6. How many Limas of your land are under cultivation?
7. When do you start land preparation for cultivation?
8. Why do you start land preparation at that time?
9. Do you have oxen?
10. If you do not have oxen, when do you start land preparation?
11. What type of labour do you use on your farm/field?
12. What crops do you grow?
13. What type of seed do you use in planting?
14. What method of planting do you use?
15. Why do you plant that way?
16. Have you ever tried to plant in lines?
17. If yes, how was the yield?
18. For how long did you plant in lines?

19. What made you stop planting in lines?
20. Have you ever obtained seed or input from somewhere?
21. If yes, was it a loan or grant?
22. How did you utilize the inputs?
23. Where do you store your farm implements after use?
24. Do you regularly attend group meetings?
25. If no, Why?
26. When you have your meetings, who comes up with what to be discovered?
27. Do you get assistance from your extension office camp officers and group promotions?
28. If yes, state the type and nature of assistance rendered?
29. What form of assistance would you need from the department of field services in order to improve farming?
30. Do you participate in planning and evaluating your group activities?
31. If no, why?
32. What modern practices of farming can you say are better than your traditional methods?
33. What problems do you find in following recommended farming practice?
34. Suggest how agriculture can be improved in your area.



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P O Box 32379
Lusaka Zambia

Your Ref:
Our Ref:

10th May, 2002

TO WHOM IT MAY CONCERN

RE: RESEARCH UNDERTAKING

The bearer (s) of this letter is a student in the Degree/Diploma course in Adult Education. He/she has been requested to undertake research in your organization as part of his/her learning experience. Your help and co-operation in this regard will be highly appreciated by the department, as this will enable the student to marry theory work which is offered in the class and practical work which can only be obtained from organizations like yours.

I look forward very much to a favourable response in this regard.

Yours faithfully,

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P.O. BOX 32379
LUSAKA ZAMBIA

for *W.W.*
Dr. W.W. Chakanika
HEAD, ADULT EDUCATION
& EXTENSION STUDIES.

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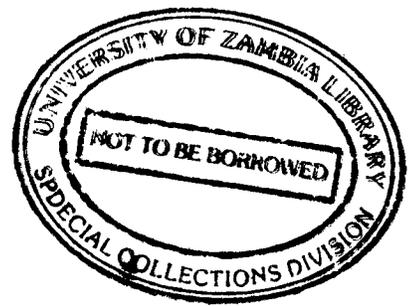
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