MAIZE SEED VARIETY AWARENESS AND SOURCES OF INFORMATION AMONG SMALL-SCALE FARMERS IN KAPIPRI MPOSHI, ZAMBIA

A Thesis Presented to the Department of Agricultural Economics and Extension Education of the University of Zambia

By

MICHAEL KABWE

In partial fulfillment of the requirements
for the Degree of Bachelor of Agricultural Sciences

Acknowledgements

First and foremost, I would love to thank the almighty God for having kept me alive up to this point for without him I would not even have reached this far to write this report. My sincere gratitude and acknowledgement go to my supervisor Dr. Thomson H. Kalinda for his guidance and Encouragements. Further thanks go to the department of Agricultural economics teaching staff for the roles they played in ensuring that the study was a success. I also wish to thank my friends Jones, Julius, Edward and Barbara for facilitating my typing and printing of both the report. To my friend Sadie, I am humbled by the way you have managed to put up with all the trouble that I always gave you in terms of time and dedication, as well as the moral support. And finally, to my family, more especially to my late parents, I thank you and will always remember those words of wisdom which you always gave me, it has not been easy but thank God it has been accomplished. And to the rest of my family I would say thanks for having been there for me through out all my studies. I love you and I will always treasure your support.

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List of Abbreviations

SSF	-	Small-Scale Farmer
Zamseed	-	Zambia Seed Company
MRI	-	Maize Research Institute
FAO	-	Food and Agriculture Organization
TNDP	-	Third National Development Plan
PRSP	-	Poverty Reduction Strategic Paper
LCMS	-	Living Conditions Monitoring Survey
GSICR	-	Global Seed Industry Concentration Report

Abstract

MAIZE SEED VARIETY AWARENESS AND SOURCES OF INFORMATION AMONG SMALL-SCALE FARMERS IN KAPIPRI MPOSHI, ZAMBIA.

Michael Kabwe
University Of Zambia, 2005

Supervisor:
Dr.T. H. Kalinda

The liberalized and rapidly growing seed industry has been assumed to have improved awareness and information dissemination about maize seed varieties among the small-scale farm households. Therefore, this study was conducted to examine from the farmer's point of view, the effects of changing the seed industry on small scale farmers' choice of maize seed.

The study was conducted among the small-scale farm households Mukonchi area in Kapiri Mposhi District of Zambia. The main objective of the study was to determine the effects of liberalization of the Seed industry on small scale the farmers' choice of maize seed suppliers, and the specific objectives were to determine the small-scale farmers' knowledge and source of the maize seed cultivars that they grow, to identify sources of information about maize seed varieties on the market, to find out the farmers' views on the quality of maize seed which is currently on the market, and to determine the reasons underlying small-scale farmers choice of maize seed on the market. Primary data was collected through a survey using a questionnaire, while secondary data was collected from the key informants in various seed supplying organizations as well as other related industries.

The findings of the study revealed that the liberalized seed industry has contributed to the reduced gap between the rural farm households and the input markets as guided by information dissemination and improved maize varieties. This is so because small-scale farmers believe that there has been an improved maize seed quality supplied to the market for production, as indicated by maize seeds showing improvements in yield, storage qualities and the growing period. Small-scale farmers also believe that there has been an improvement in information dissemination regarding various maize seed cultivars on the market after liberalization of the seed industry as compared to the period before liberalization actually took place. The reason being that there are improved extension services, and other relevant reasons such as changes in advertising strategies coupled with demonstrations at field-days as well as during agriculture shows, as opposed to SSF training on how to use the seed.

Based on these findings, it is recommended that Government should work in partnership with the seed suppliers in order to further improve extension services to small-scale farmers so as to offer training to the small-scale farmers on how best to use the various hybrid maize seed varieties to maximize yield. The other recommendation is that Zambia Seed Company (Zamseed) and the Maize Research Institution (MRI) should improve on their distribution strategies and information dissemination to compete favorably with the other seed suppliers like Pannar Seed Company and Seedco Limited.

CHAPTER ONE

INTRODUCTION

1.1 Introduction and Background

Like most developing countries, Zambia regarded food security as one of the key variables that actually determine the country's economic development through agriculture production and industrial expansion. Hence, agriculture has been given a priority and investment in agriculture, by the Zambian government, was begun in 1970s after policies that advocated for improvement of agricultural production were formulated.

Government, in an effort to try and boost the country's agricultural production, set up various institutions to offer credit services and input distributions to farmers, in order to promote agricultural productivity. Zamseed was formed in a similar line to spear head distribution seed cultivars, mostly maize, to all farmers in the country

Zamseed's efforts have been appreciated among commercial farmers because they have always accessed information regarding various seeds on the market as well as extension services that they required vis-à-vis crop inspection, variety recommendation for particular areas, etc. This however, has not been the case with the small scale farmers. Small scale farmers in the country have always been faced with the problem of accessing appropriate information with regard to various changes that occur in the input market, especially information on farm input distribution. The out come of this has often been disastrous on the farming practices among the farmers because it has always forced them to acquire seed cultivars that are not suitable for their agro-ecological region or they do not actually acquire on time.

Although small-scale farmers form the majority of the total farming population, they are the most poorly organized in the country as in they are not well registered, and are in most cases not recognized when formulating policies by most firms in the industry.

Moreover, small-scale farmers do not access information on time in preparation for the growing season.

Actually, productivity of small scale farmers has been viewed in the past by development planners as being vital to developing the World's Green Revolution (FAO report 1988). By going with the past trends small-scale farmers have accessed only those seed inputs that are available on the market with no regard to the quality. This is because they lack appropriate information on the seed performance.

Thus, the choice of which farm inputs to use at the beginning of each farming season by small scale farmers such as seed is influenced by its availability in the area (Banda Francis, 1992). This means that small-scale farmers have in the past not accessed information regarding seed cultivars on the market. This was mostly the case when the Seed Industry was monopolized by Zamseed - the then market leader due to the fact that the company was under staffed and so could not manage to provide extension services that would carter for the entire farming population in the country.

Now with the liberalization of the Seed Industry, which has seen the inflow of private seed producers and distributors in the industry improved services to small-scale farmers, has it improved agricultural production? This study has somehow uncovered the impact that liberalization and expansion of the seed industry has had on information dissemination to the small-scale farmers.

1.2 Problem Statement

Before liberalization, when the Seed Industry was controlled by one seed company – Zamseed, most small-scale farmers lacked access to information as regards the appropriate seed cultivars to be grown in their respective areas (Francis Banda 1992). This is what actually influenced the rate of adoption of hybrid maize seed for growing. Now that the Seed Industry has greatly expanded (with so many seed companies), it becomes important that the current activities of the industry be followed up closely to see whether all the farming sectors fully benefit, unlike in the past when the commercial farmers easily accessed market information. The questions still stand: has liberalization of the Seed Industry affected the Small scale farmers positively, negatively or has it just left them indifferent? Are the small scale farmers receiving services that they expect from these seed suppliers? Asked differently, has the expansion of the seed industry benefited small scale farmers?

1.3 Study Objectives

1.3.1 General Objective

The general objective of study was to determine the effects of liberalization of the Seed industry on small scale the farmers' choice of maize seed suppliers.

1.3.2 Specific Objectives

1. To determine the small-scale farmers' knowledge and source of the maize seed cultivars that they grow.
2. To identify sources of information about maize seed varieties on the market.
3. To find out the farmers' views on the quality of maize seed which is currently on the market
4. To determine the reasons underlying small-scale farmers choice of maize seed on the market.

1.4 Hypothesis

- Small scale farmers' choice of seed cultivars on the market is influenced by availability.

1.5 Rationale for the Study

The information obtained from the study would give the various seed companies an insight of the farmers' perception about the current services that are being provided and how best they can address them. The study would also help seed producers make adjustments as regards the services that they provide to the small-scale farmers. Now that there are many seed suppliers, have these problems been solved. The other importance of this study is that it would also enlighten the policy makers especially in the Ministry of Agriculture and Cooperatives on how the effects of liberalization have impacted agricultural production among small scale farmers. This will in turn help the p[olicy makers in designing strategies aimed at further improving extension services to the small-scale farm households.

1.6 Limitations of the Study

The following were the limitations of the study:

1. The farm households are sparsely located with poor road networks interlinking them. This led to too much time consuming when conducting the research.

2. High costs were incurred which included transport costs, lodging, fuel costs and hiring costs which were necessary for the study to be successful.

3. Certain information from the key informants was not readily available; this would have provided the secondary information needed for the study. For instance, CSO had not yet compiled the actual population for the district and the actual area of study for the 2000 census, and only data for the previous census was available.

4. Other difficulties were encountered during the analysis of the information especially the data which was collected from the survey sample of small-scale farm households using an open ended questionnaire. This meant that each respondent had to give theirs answers according to the way they understood the

questions, resulting in so many different answers that were given for the same question and this was difficult to aggregate and analyze to come up with a representative response.

1.7 Organization of the Thesis

Chapter one of the thesis presents information on the background of the seed industry, as well as farming and small-scale farming in Zambia. It also contains the problem statement, objectives of study, hypothesis, rationale and the limitation of the study. Chapter two presents information on the literature review of other related studies. It begins by giving brief background of the Zambian economy, Zambia's agriculture and the Zambian seed industry at the end. Chapter three contains methodology for the study which comprises the information on the area of study, method of data collection, sample size and data analysis. The research findings and discussion are in chapter four while conclusions and recommendations are contained in chapter five.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature on the previous work done in the related field of study as the one being undertaken. This literature review has been presented in such a way that it first begins by giving the background on Zambia's economy as that of being a mixed one. It then goes on to talk about Zambia's agriculture before and after the liberalization of the economy, and then finally describes the seed industry again before and after liberalization of the seed industry.

2.2 Zambia's Economy

Zambia has a mixed economy consisting of a modern urban sector that, geographically, follows the old line of rail and a rural agricultural sector. For a long time, the modern sector has been dominated by parastatal organisations, while private businesses have dominated construction and agriculture sectors. The introduction of a liberalised market-oriented economy in 1991 has seen the privatisation or liquidation of most parastatals. Copper mining was the country's main economic activity, accounting for 95 percent of export earnings and contributed 45 percent of government revenue during the decade following independence (1965-1975). In the mid-1970s following a sharp decline in copper prices and a sharp increase in oil prices, the country's economy deteriorated. Attempts were made to minimise dependency on copper exports by diversifying the economy through the creation of import substitution parastatals.

The 1980s marked the start of the first phase of implementing Structural Adjustment Programmes (SAP). However, the SAP failed to substantially alter the economy resulting in high poverty levels among the majority of population. As at 1998, 73 percent of Zambians were classified as poor, with poverty being more prevalent in rural areas than urban areas (83 percent and 56 percent, respectively). The country is currently implementing vigorous programs aimed at poverty reduction and stimulating economic growth. The Transitional National Development Plan (TNDP) and Poverty Reduction Strategy Paper (PRSP) aim at reversing the country's deteriorating social economic conditions and attaining sustainable economic growth. This is being done through a multi-sectoral approach in which, agriculture, tourism, manufacturing and mining sectors serve as the engines of growth.

2.3 Agriculture in Zambia

In Zambia today, agriculture is grouped into three main categories, according to the Ministry of Agriculture Planning unit report (2003). These include: Small-scale (less than 5 ha), (Emergent 5 to 20 ha) and (Commercial 20 + ha), and up to 60% of the total Zambia farming population are the small-scale farmers. In fact, the First National Development Plan (FNDP) recorded that up to 60% of the Zambia population depended and still depend on agricultural production for both food security and income.

Zambia's agricultural sector was previously dominated by commercial farmers mostly the white farmers until the 1970s when the government actually realized the importance of having a well financed small-scale agricultural sector as it mainly produces for home consumption there by rendering the nation self sufficient food wise. Up to 1991, Zambia's agriculture sector was state controlled which limited the private sector activity in the industry. Due to lack of competition the state through its parastatals became incompetent in its service provision to the farmers. Therefore, after liberalisation of the economy, the government tried to stimulate agricultural production through the use of out-grower schemes so as to reduce its activity in the agricultural sector, by letting the private sector supply inputs to the farm households. In other words, the government in a way tried to boost agricultural production through liberalization of the commodity market for agriculture products, and creating a ready market for their produce among which included liberalization of the seed industry. This was seen as one of the contributing steps that could lead to increased production especially among the small-scale farm households as they would have accessed to inputs (PRSP).

As a result of the large population of the small-scale farm households in the country it was noted that their productivity is vital to developing the World's Green Revolution. Therefore, empowerment of these small-scale farmers has been thought of as being of great importance to the development of third world nations (FAO, 1988). In fact, the potential for agricultural growth to contribute to the income and welfare is unequivocal. Agricultural is the largest sector employer, and by year 1998 the large majority of Zambia's agriculture producers were small-scale farms with about four hectares per household (Deininger, 1997).

Zambia has realized the importance of developing small-scale farming sector so that, in addition to developing the country, there would be also improved food security among farm households. Although this has been implemented, little has been done to improve productivity among small-scale farmers. As a matter of fact small-scale farmers form the majority (or 73%) of the farming sector, but contribute far less to the growth of GDP as compared to large scale farmers. There are various reasons to this effect.

For instance, small-scale farmers have lacked access to market information in the past before they can purchase seed. Appropriate and timely information help farmers to make correct choices of the seed varieties to purchase in relation to the agro-ecological regions they are situated in.

Small-scale farmers' buying behavior of hybrid seed is greatly influenced by low levels of awareness of the seed varieties. That is, as a result of lack of awareness small-scale farmers are reluctant to adopt new seed varieties on the market (Banda, 1992). Despite the prominence of agricultural activities in rural areas, access to an input market has been more difficult for rural households compared to urban households. Within a radius of 5 km, 72 percent of urban households compared to 18 percent of rural households have access to an input market. The majority of rural households, 63 percent, have to travel at least 16 km to gain access to an input market. In comparison, only 12 percent of urban households are within that distance. (LCMS, 1998).

2.4 Zambia's Seed Industry

The Zambian seed industry was previously dominated by a sole seed supplier called Zambia seed Company (Zamseed). The Zambia Seed Co. Ltd., of Lusaka, Zambia, founded in 1981 to produce, process and market agricultural and horticultural seeds, makes a point of knowing that its seeds will succeed in the importing country. However, it could not sustain adoption of improved varieties it had released. The possible explanation given for the lack of adoption is the inefficiency of seed supply systems put in place by governments in the 1970s and 1980s. These usually consisted of single distribution channels dominated by public agricultural departments or parastatals companies such as Zamseed Company itself. Beginning in the late 1990s Zambia introduced economic reforms that included liberalization of the seed industry.

The effect of liberalization included expansion of the Private sector activity especially that of the NGOs and private companies has greatly expanded since the reforms. Seed sub sectors are undergoing rapid change and development in the wake of market liberalization and deep government budget cuts. Government organizations, through design and default, are transferring responsibilities for plant breeding, extension, multiplication, marketing, and regulation to private organizations (World Bank Development Report-1980-1994).

Before reforms, the government breeding program was the single source for new varieties, which were multiplied and distributed by a single parastatal or semi-private seed company. As a result of liberalization there are now multiple sources of new varieties (including private firms and NGOs), but commercial farmers, not smallholders, have been the major beneficiaries so far. Several research-based international seed companies dominate the supply of hybrid maize seed, while international research centers, NGOs, informal farmer groups and commodity traders control the supply of open pollinated seed for maize, sorghum and groundnuts. The government and NGOs continue to dominate the supply of seed to farmers in marginal areas through drought relief programs. Government organizations are also beginning to transfer regulatory functions to the private sector such as biological and technical factors that affect commercial interest in the production of different seed types. Biological and technical production features of a crop (e.g., reproductive characteristic, sowing rate, multiplication factor, rate of varietal deterioration) affect seed (World Bank, 1995).

Liberalization has had its own constraints and these include reduced Smallholder adoption of improved seed (especially sorghum and groundnut) and lack of information about the benefits of using new technology and inadequate access to new seed. Pre-reform programs provided powerful incentives for smallholder adoption of hybrid maize and fertilizer, although they became financially unsustainable. The programs educated smallholders about the yield advantages of hybrid maize and fertilizer and directly linked smallholders with input and output markets. Improved inputs were provided on (subsidized) credit through local cooperative depots, with payment deducted at the end of the season when the farmer marketed the crop (GSICR. 2005).

Following the reforms that eliminated these marketing programs and other subsidies to seed parastatals, commercial seed seems expensive, difficult to obtain, and its use risky given poorly developed output markets. With the decline of extension services in the country following budget cutbacks, smallholders today lack a reliable source of information about the benefits of improved varieties.

As alluded to earlier on lack of information about the benefits of using new technology and inadequate access to new seed affect the small-scale farm households' adoption of these innovations in the seed industry. This was mostly the case when the Seed Industry was monopolized by Zamseed - the then market leader due to the fact that the company was under staffed and so could not manage to provide extension services that would carter for the entire farming population in the country. Thus, the choice of which farm inputs to use at the beginning of each farming season by small scale farmers such as seed is influenced by its availability in the area (Banda, 1992). This means that small-scale farmers have in the past not accessed information regarding seed cultivars on the market. Now with the liberalization of the Seed Industry, which has seen the inflow of private seed producers and distributors in the industry improved services to small-scale farmers, has it improved agricultural production? This study has somehow uncovered the impact that liberalization and expansion of the seed industry has had on information dissemination to the small-scale farmers.

Although seed is the pathway to agricultural development, as it is the carrier of technologies to farmers and a repository of genetic resources upon which crop development and improvement depend, this can only be successful if it is implemented among well-informed farmers in the sector. This implies that no matter how developed the seed industry can be, as long as there is no information targeting the farming sector, farmers would stick to their old seed cultivars (Zulu, 2001). Therefore, provision of adequate sources of reliable information minimizes the small-scale farmers' problems and costs of accessing and buying seed varieties.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methodology used for the study. The chapter begins by first describing the area of study in terms of the demographic characteristics as well as the social and economic features, then goes on to talk about the methods of data collection. The method of data collection describes the main sampling designs used in the study, and in this study a simple random survey was used. The sample size used in this study contained a total of 110 small-scale farm households who were randomly selected from the total population of the small-scale farm households in the area of study. The chapter further goes on to discuss the methods of data analysis which h was used to analyze the data collected. Data was analyzed using a statistical package for social sciences (SPSS).

3.2 Study Site

The study was conducted in Mukonchi area which is located 50km to the east of Kabwe urban in the Kapiri Mposhi district of Central province (located in the agro-ecological zone II). The area has a total of 1, 500 households with over 60% of this thriving on small-scale farming activities while the rest provide labor for the commercial farms in the area. Mukonchi farming area is splitted into three blocks which are the East bank, North bank and Mukonchi central. The majority of the small-scale farm households are found in the North and East banks while the major commercial farmers are fond on Mukonchi central and the most prominent commercial farmers in the area include Dumela Farms and Dar Farms which provide employment to the local people.

The area has many farming activities ranging from small scale to commercial farming. In fact, most of the people in the area are either directly or indirectly engaged in farming activities. That is, the majority of the people in the area are either small-scale farmers who are directly involved in farming activities or are indirectly involved in farming through employment in the commercial farms.

Thus, the main economic activity of the area is farming (which mainly involve food crop and cash crop farming). The major crops grown in the area are cotton, tobacco and maize. Cash crops (mainly Tobacco and cotton) are usually financed by companies such as Tombwe processing limited (provides tobacco loans usually to commercial farmers), Stancom (tobacco loans to small-scale farm households) and Dunavant (provide cotton loans to both small-scale farm households and commercial farmers) which run outgrowing schemes in the area. Maize is usually grown by the households as a supplementary crop to provide and enhance food security, though other people produce it for sell as a source of income. Notice that there are no loans which are offered for maize production in the area, except for the subsidized fertilizers from the government. Other crops grown in the area include Paprika, tomatoes, soybeans, sorghum and ground nuts.

In addition, the area has three dams which were constructed to provide domestic water as well as irrigation water. Later on, these water reservoirs started providing fish catches to the local people and this turned out to be another activity for some people in the area. Besides these activities especially at the end of the farming season, the local dwellers find themselves with little or nothing to do, and beer drinking becomes the major form of recreation for some local dwellers in the with income.

Generally, the area is sparsely populated though some places (such as a place where you find the rural health center, schools, market and other recreation facilities) that are slightly densely populated.

The community based organizations in the area include the Catholic Church which is involved in helping the local vulnerable but viable farmers as well as helping the old aged. In addition, there is also Mukonchi cooperative society- a subsidiary of Mkushi district cooperative society- which helps the farmers in input procurement.

3.3 Method of Data Collection

Both primary and secondary data was used in this study. Primary data was collected using both formal and informal interviews. Formal interviews involved use of a structured questionnaire which was administered to all respondents (or small-scale farmers) in the study sample, while informal interviews involved use of unstructured interviews with other key informants in the Seed Industry such as the various employees from Seed Companies. Secondary data was collected from the Seed Companies which included Seed Co, Pannar, MRI and Zamseed as well as Ministry of Agriculture and Co-operatives (MACO).

3.4 Sample Size

A 110 small-scale farm households sample was be collected using a simple random survey, to which structured interviews through the use of questionnaires will be conducted. A simple random survey is a form of probability study, where respondents (or the small-scale farmers) were given an equal chance of participating. This method of data collection was preferred in this case so that the data collected can have external validity and hence possible generalization of the findings.

3.5 Data Analysis

The information which was collected from the 110 respondents using a simple random survey was analyzed using statistical Package for Social Sciences (SPSS). The analysis was merely descriptive during which the raw data was organized, summarized and described using the major descriptive tools like frequency tables, graphs and charts. These tools were used basically to simplify data presentation and interpretation. Secondary data which was obtained from officials from seed supplying companies as well as the agricultural extension officers in the area of study, who are the key informants, was analyzed qualitatively and was actually used to back information from the survey.

CHAPTER FOUR
RESEARCH FINDINGS

4.1 Introduction

This chapter presents the details of the findings from the study and begins by discussing the socio-demographic characteristics of the respondents. Socio-demographic characteristics give details of respondents' sex, age, marital status, literacy levels as well as their household size. The chapter also discusses the socio-economic status of the respondents, in which their main activities which provide them with income are identified. It further discusses the methods of income estimation for the respondents bearing in mind their fluctuating levels of income through out the year. The parameters used to estimate the respondents' income included assets owned, type oh house they live in and/or whether they use more of household labor of hired labor for their farming activities. The chapter ends with the discussion of the study objectives so as to arrive at the intended results of the study. The objectives are discussed according to the order in which they are outlined in chapter one. The essence of this chapter is that it actually gives the details of the actual findings of the study on which the conclusions and recommendations are based.

4.2 Socio-Demographic Characteristics

Revealing socio-demographic characteristics of the respondents is important as it provides the basis for determining the unique features that provides the reasons for the observed characteristics of the population. For instance, determining the sex of respondents is important as it helps in the identification of the various gender roles that are performed by the males and females in the community. Moreover, marital status and household size determination of the farm households is important because most of the small-scale farm households depend on household labor for their farming activities. Thus, the bigger the household size the more the quantity of labor available per household.

4.2.1 Sex

Sex of respondents is important as it helps in the identification of the various gender roles that are performed by the males and females in the community. The survey revealed that 79.1% of the sampled population of the small-scale farmers in the area is male farmers, while 21.9% were female farmers (See Table 1 below).

4.2.2 Age

Age of respondents affects their productivity, and from the findings the majority of the farmers or 36.4% of the total respondents were in the age range 36-45 years old. The mean age of the respondents was 44.27 years with a standard deviation of 11.4329. Details of the age statistics are shown in Figure1 below.

4.2.3 Marital Status and Household Size

Marital status and household size determination of the respondent is important because most of the small-scale farm households depend on household labor for their farming activities. Thus, the bigger the household size the more the quantity of labor available per household. From the study 81.8% of the respondents are married with an average household size of 7. Details of the respondents' marital status are shown in table 1.below.

4.2.4 Education Level

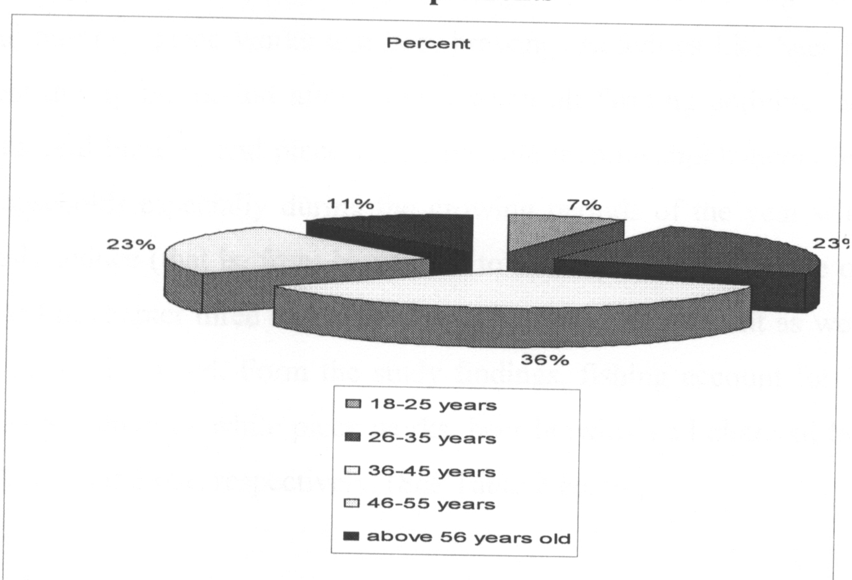
Education level of the farmers helps in the identification of the literacy levels of the small-scale farmers to see if they can read and write so as to determine which method of information dissemination would be suitable for them so as to effectively communicate the latest innovations that come up in the seed industry. From the study, 38.2% of respondents in the area have been to primary school, 18.2% to secondary school and only 13.6% have gone up to tertiary level of education, while 30% of them have never been to school. Thus the majority (which include 38.2% and 30% who have been to primary school and never been to school, respectively) of the small-scale farmers in the area can neither read nor write. This is perhaps so because of few numbers of schools in the area which are located far from most farm holds making it difficult for them to attend basic education. Details of education statistics are shown in Table 1.

Table 1: Socio-Demographic Characteristics of Respondents.

CHARACTERISTICS	NUMBER OF FARMERS	PERCENT
GENDER		
• Male	87	79.1
• Female	23	20.9
Total	110	100
AGE		
• 19-25 years old	8	7.3
• 26-35 years old	25	22.7
• 36-45 years old	40	36.4
• 46-55 years old	25	22.7
• Above 56 years old	12	10.9
TOTAL	110	100
MARITAL STATUS		
• Single	6	5.5
• Married	90	81.8
• Other	14	12.7
Total	110	100
EDUCATION LEVEL		
• Primary	42	38.2
• Secondary	20	18.2
• Tertiary	15	13.6
• None	33	30
Total	110	100

Source: Own Survey Data

Figure 1. Age Distribution for the Respondents



Source: Own survey data

4.3 Social and Economic Status

The social and economic status focuses on the main activities that the small-scale farm households are engaged for their livelihood. These include all the activities which provide food and income for the respondents.

4.3.1 Main Activities

The main economic activity in the area is farming which mainly include cash crop and food crop farming. This is evident from both observations and the results of the survey which indicated that most of the sampled small-scale farmers' population is engaged in agricultural related activities. In fact, farming accounts for 78.3% of the total activities that are practiced in the area. Farming is further delineated into cash crop and food crop farming. 48.2% of the total respondents are engaged in food crop farming while 51.8% practice mainly cash crop farming, and the main crops grown as cash crops are tobacco and cotton while maize is the crop that is mainly grown as a field crop, and these provide their major income. (See Table 2 below)

4.3.2 Other Activities

Other socio-economic activities in which the respondents are engaged include fishing, charcoal burning, piece works and beer brewing. Activities like beer brewing are most prevalent during the period after harvest when all farming activities almost come to a halt. Charcoal burning and piece works provide income supplements for the small-scale farm households especially during the growing periods of the year when their incomes drastically reduce (that is, from November to March). Fishing is done on the local dams mentioned in chapter three and mainly provides food supplement as well as incomes for those who are involved. Form the study findings, fishing account for 2.4% of the total respondents' activities while piece works, beer brewing and charcoal burning accounted for 12%, 4.7 and 2.6%, respectively. (See Table 2 below)

4.4 Sources of Income

The aforementioned social and economic activities of the respondents provide income for them. From the study findings, cash crop farming provides 29.1% of the respondents' total income, while beer brewing account for 5.5%. Wages and fishing account for 16.4% and 2.7%, respectively. Remittances account for 3.6%, while charcoal burning, food crop farming and piece works provides the respondents with 7.3%, 24.8% and 10.9%, respectively. Details of statistics of responses are shown in Table 2 below

These activities are what provide the small-scale farm households with income. The small-scale farm households in the area survive more on food crop farming and cash crop farming, than they do on the other activities charcoal burning, fishing, beer brewing, and any other productive activities.

4.5 Income Estimation

Income of the respondents was estimated using assets owned type of house they live in and whether they use hired labor, household labor or both for their farming activities. These parameters were used to estimate income because it was difficult to directly measure the small-scale farm households' annual income as it is subject to both short term and long term variations due to lack of regular source. That is, most of the small-scale farmers experience higher incomes during harvest period when they sell their produce, and this gradually decline substantively up to just before the next harvest period. Hence direct measurement would not be accurate since they are unemployed it means their own sources of income are agriculture related activities.

4.5.1 Assets Owned

The kind of assets owned was used as the estimate their particular respondents' income. For instance, respondents who owned assets like bicycles, wheelbarrows or farm implements such as an ox-plough were considered to have better income than those who owned hoes, axes, etc. To estimate their income using the assets owned, the respondents were asked to indicate their assets and these included bicycles, wheelbarrows and field implement such as hoes. From the findings, 16.2% own a bicycle, 78.8% own other implements which included hoes, rakes, etc, while 5% indicated that they owned plough, wheelbarrows, etc. (See Table 2 below)

On the kinds of assets were livestock and the farmers keep pigs, goats, cattle, chickens, sheep or other types of livestock such as guinea fowls, rabbits dogs, etc most of which are used as sources of food, income, security or simply prestige. All of the respondents own chickens, while some own guinea fowls. 20 % of the respondents own goats, 8.35% own pigs and 12.76% own cattle. When used as a source of income the farmers sell part of their livestock either for cash or in exchange for other items which they feel they need. As for the farmers who own cattle they indicated that they use their cattle for draft power. Therefore, the results obtained imply that 78.8% of the respondents have not enough incomes to own expensive assets like bicycle. (See Table 2 below)

4.5.2 Sources of Labor

Respondents who used hired labor in addition to household labor were considered to have better incomes than those who only used household labor. The major source of labor for the farming activities was found to be household labor as opposed to hired labor. In fact, 86.4% of the respondents indicated that their main source of labor for their farming activities was household labor, and 13.6% said they used hired labor as well as other sources of labor in addition to household labor. This is mainly so because the people in the area have no regular sources of income to help them sustain hired labor. As alluded to earlier, the main source of income for the small-scale farmers is farming, and as you may know that the small-scale farmers in the area depend on rains for their farming activities. Meaning that they have their incomes during the harvest period of the year (that is, from may to august) after which they have no other source, and so they cannot afford to pay hired labor. Instead, they have household labor abundant at their disposal which they actually prefer using. Moreover, the small-scale farmers rarely use other forms of labor such as machinery power because it is just not affordable either buying or hiring. Thus, based on the above reasons respondents have low incomes. (See Table 2 below)

4.5.3 Type of House

This was another criterion that was used to estimate the income levels of the respondents. The assumption was that those respondents who live in metal or iron roofed houses had better incomes than those that live in grass roofed houses. Thus, the respondents were asked to indicate the type of houses they lived in and 27.3% indicate that the live in a burnt bricks iron roofed house, 18.2% in a burnt bricks grass thatched roof, 10.9% live in mud wall iron roofed house and 43.6% of the respondents who are the majority live in a mud wall grass thatch roof house. Therefore, the majority or 43.6% of the respondents have not enough incomes to afford living in better houses such those that are either iron/nor tin roofed.

4.5.4 Land Size Cultivated

Respondents who cultivated land greater than five hectares in the previous season were considered to have more incomes than those who cultivated land less than five hectares. The average land size cultivated by each household farm family is 3.0 hectares; though some farmers cultivate land as small as 0.5 ha other small-scale farmers do actually cultivate land as big as 10 hectares, especially those with daft power. For the farmers who cultivated small hectarage the main issue is lack of both resources and labor required increasing the size cultivated, while for the farmers who cultivated large hectarage last season, they supplemented their labor with draft power. Details of labor utility among the farm households are shown in table 1.below.

Table 2: Socio-Economic Characteristics of Respondents.

CHARACTERISTICS	NUMBER OF FARMERS	PERCENT
MAIN ACTIVITIES		
• Cash crop farming	45	40.56
• Food crop farming	41	37.74
OTHER ACTIVITIES		
• fishing,	2	2.4
• charcoal burning,	3	2.6
• piece works	13	12
• beer brewing	6	4.7
Total	110	100
SOURCES OF INCOME		
• Beer brewing	6	5.5
• Wages	18	16.4
• Fishing	3	2.7
• Remittances	4	3.6
• Charcoal burning	8	7.3
• Food crop farming	32	29.1
• Cash Crop farming	27	24.6
• Piece works	12	10.9
Total	110	100
ASSETS OWNED		
• Bicycle, wheelbarrow, plough,, TV, etc	23	16.2
• Hoe, axe, rake,	87	78.8
Total	110	100
SOURCES OF LABOR		
• Household	95	86.4
• Hired	11	10
• Other	4	3.6
Total	110	100
TYPE OF HOUSE		
• Burnt bricks iron roofed	30	27.3
• Burnt bricks grass thatched	20	18.2
• Mud wall iron roofed	12	10.9
• Mud wall grass thatched	48	43.6
Total	110	100

Source: Own Survey Data

4.6 Knowledge of Seed Varieties

Determination of the small-scale- farm households' knowledge of the various seed varieties available on the market is important as it provides the ground on which to determine whether they know the various seed suppliers on the market Agricultural activities have been going on in the country and Mukonchi area in particular for a long time now so much so that even before the inception of any seed company in the country, people knew and actually planted various kinds of traditional seed varieties. Now the purpose of this study was to determine whether these farm households could actually differentiate local seed from hybrid seed, indicate the actual maize seed varieties used as well as identify the sources these hybrid maize seeds; that is, whether they obtained it from retails shops, distributing agents or their neighboring farm households. Obviously, the farmers do obtain their local varieties mostly through stored grain. Small-scale farmers' Knowledge of various seed varieties that they use is important as it formed the basis of identifying whether they actually know who the various seed suppliers are.

Thus, when asked if they knew and have used the different kinds of maize seed varieties available in the area, 32.6% of the respondents said they knew about the local varieties while 51.1% said they knew about hybrid seed. 5.4% and 10.8% of the respondents said they knew about open pollinated varieties (OPVs) and other seeds, respectively. Of those that knew about the hybrid seeds available in the area, 69.9% said they obtained their hybrid seed from the neighboring farm households while 30.1% said from retail shops (or distributing agents)

To further establish if the respondents knew who the various producers of this hybrid seed was it was apparent that they knew about Seed Co, Pannar, Zamseed and Maize Research institute (MRI) and this was revealed in the study results obtained. From the responses in table 2.0 below, 27.4% of the respondents said they knew about seed produced by Seed Co and they have actually used it before, 35.4% of the respondents indicated that they have used Pannar, 24.5% of the respondents indicated that they have used Zamseed seed before, and only 12.7% of the respondents said they have knowledge of MRI seed which they have actually used before.

When further probed on the specific hybrid maize seed varieties which are frequently used their most popular varieties used were for Pannar and include PAN604, PAN652, and PAN703 and PAN514. For Seed Co it was SC709 and SC514 while for Zamseed varieties mostly used were MM604, MM752, MM702 and MM703. Lastly the variety used for MRI seed was MRI614. Details are shown in Table 3 below and from the responses given it are clear that SSF in the area have either used hybrid maize seed produced by either one or more of the seed companies in question. Their major sources of this maize seed are the neighboring households and the retails shops or distributing agents. Pannar seed is the most popular seed among the SSF in the area, followed by Seed Co seed, Zamseed and then MRI seed as the least popular seed in the area. The reason for the differences in popularity of the various hybrid maize seeds could be attributed to the differences in information dissemination as well as aggressiveness of propagating the maize seed news to the SSF.

Table 3: Hybrid Seed Varieties used by the Respondents

SEED SUPPLIER	VARIETY	NUMBER OF RESPONDENTS	PERCENT
PANNAR	PAN604 PAN652 PAN703 PAN514	58	52.7%
SEED Co	SC709 SC514	29	26.4%
ZAMSEED	MM603 MM752 MM702 MM604	18	16.4%
MRI	MRI614	5	4.5%

Source: Own Survey Data

4.7 Small-Scale Farmers' Sources of Information

Sources of information imply the various ways and means by which the small-scale farmers in the area get to know about what kinds of maize seed varieties are available on the market as well as who the producers are. Moreover, information dissemination will also offer the small-scale farmers an opportunity to learn about the correct use of these seeds for maximization of yields. There are various methods of disseminating information to the farmers, which include the static or electronic media, the print Medias, field days, neighboring farmers, etc. recall from the discussion on the education level during which it was determined that ones level of literacy influence the choice of information source to used in order to effectively get the message being disseminated.

Table 4 below indicates that 31.6% of the sampled population knew about hybrid seed through electronic media such as radio, TV, etc, while 9.5% said they knew about the maize seed cultivars through the print media. 18.9% of the sampled population indicated that they knew about hybrid seed through field days especially local shows, 31.6% of the small-scale farmers knew through neighboring farmers, and 8.4% of the respondents learnt about various maize seed cultivars through other sources which included visiting relatives from urban centers or other places where these seed had already been introduced.

Therefore, small-scale farmers in the area access information on various maize seed cultivars on the market mainly through electronic media (such as radios) as well as through neighboring farmers as opposed to the print media and field-days. Moreover, SSF rarely access information through sources such as visiting relatives from urban areas. Note that the statistics of the sampled population show that the farmers used the electronic media as well as field days as their main sources of information as opposed to the print media because they do not require reading and writing therefore, in order to further improve information dissemination there is need for seed producers to improve on their participation in locals shows which are held in various areas of the country, especially in rural areas. The electronic and print media though important in information dissemination, they are not the best means as they only provide one way communication to the small-scale farm households and so would not give them an opportunity heir their views back to the seed suppliers. Thus, extension services via field visits and farmer group meetings are the most preferred

Table 4: Knowledge of Maize Seed, Producers and sources of information

CHARACTERISTICS	NUMBER OF FARMERS	PERCENT
VARIOUS MAIZE SEED VARIETIES		
➢ Local Varieties	30	32.6
➢ Hybrid	47	51.1
➢ OPVs	5	5.4
➢ Other seeds	10	10.8
KNOWLEDGE OF MAIZE SEED ROM;		
➢ Seed Co seed	30	27.4
➢ Pannar Seed	39	35.4
➢ Zamseed seed	27	24.5
➢ MRI seed	14	12.7
SOURCES OF HYBRID MAIZE SEED		
➢ Retail Shops	25	22.7
➢ Neighbors	58	52.7
➢ Own seed	27	24.5
SOURCES OF INFORMATION		
➢ Electronic media	30	31.6
➢ Print media	9	9.5
➢ Field days	18	18.9
➢ Neighbors	30	31.6
➢ Others	8	8.4

Source: Survey Data

4.8 Views on Seed Quality

The small-scale farmers' perception of the seed quality currently on market was determined using the ordinal scale of measurement during which the respondents were asked to rate their responses as agree, disagree or not sure. This was measured to determine how strong the farmers fill the seed varieties produced by the various seed suppliers have improved.

The table below shows statistics on SSF views on the quality of maize seed which is currently on market. From the table 37.3% of the respondents strongly feel that there is an improvement in the quality of hybrid maize seed which is currently on market, while 30.9% only agree. 10.9% of the respondents disagree that there is an improvement in the quality of hybrid maize seed, and so did the 1.8% who actually did strongly disagree. 19.1% of the respondents said they were not sure whether seed quality improved or not. In addition, to further assess which category of farmers (i.e. whether male or female) think so, a cross tabulation of the household head sex and seed quality revealed that more female farmers (74% of the total female respondents) who believe that the maize seed which is current on market is more improved. Only 61% of the total male respondents believe this.

Therefore, from the statistics given in the table below a total of 68.2% of the respondents feel there is actually an improvement in the hybrid seed quality as opposed to the 12.7% and 19.1% who disagreed and said they were not sure, respectively. Moreover, more female farmers feel there is improvement in maize seed current on the market than female farmers.

Thus, with liberalization of the seed industry there has been an improved maize seed quality supplied to the market for production.

4.9 Reasons Underlying Choice of Maize Seed

This investigation was carried out to identify some of the reasons which farm households put into consideration when selecting the various maize seed varieties. Some of these are availability, affordability, accessibility, knowledge and other reasons such as whether they are early or late maturing varieties. According to the farm households, availability is measured in terms of abundance of the maize seed on the market just before the on set of rains, while affordability is in terms of other payments such as repayment through harvested produce as opposed to the cash payment. Further, maize seed is said to be accessible to the farmers if they can easily obtain it within the area without incurring so much of additional costs like transport costs. Last, but not the least, the small-scale farmers, knowledge of maize seed cultivars is measured in terms of whether they have grown it before and actually seen the results.

Thus, when asked to indicate their views on the reasons underlying their maize seed choice 20.2% of the respondents said choice of maize seed cultivars is influenced by availability, 12.5% said it is influenced by affordability, whereas 19.2% indicated that their choice of seed is influenced by knowledge of the seed cultivar.

Moreover, 24% of the respondents indicated that their choice of maize seed is influenced by knowledge while another 24% of the respondents said other influences such as storage quality, consumption taste, length of the growing season, etc... while 40% did not indicate.

Therefore, small-scale farmers' choice of hybrid maize seed is influenced by availability, knowledge, accessibility and other factors such as storage quality, growing period, etc... as opposed to affordability. Thus for the farmers the issue of how much seed will cost is not cardinal for as long as the rains are on-set and their fields are ready, then they can utilize which ever seed is available so long as it has the aforementioned characteristics.

4.10 Views on Information Dissemination

This was done in order to establish if liberalization of the seed industry has led to improved information dissemination among the small-scale farmers as compared to the period before liberalization. The reason for this investigation was to establish whether the various Seed Companies in the industry have improved extension services to them in terms of both individual and group contacts and/or through mass media. The study revealed that 71.8% of the respondents said there is an improvement in the information dissemination to the SSF now than before liberalization of the seed industry, **as** compared to the 24.5% who said there is actually no improvement in information dissemination. 3.6% said they were not sure whether there has been improvement in information dissemination or not. In fact, a cross tabulation between farmer sex and views on information dissemination revealed that 73.6% of the total male respondents believe that there is an improved information dissemination as compared to the 65.2% of the female. Therefore, the SSF in the area believe that there has been an improvement in information dissemination regarding various maize seed cultivars on the market after liberalization of the seed industry as compared to the period before liberalization actually took place. This is indicated by the larger percentage of respondents (71.8%) who indicated this against the 24.5% who did not agree. More there are more male farmers (73.6%) who believe this than the female farmers. (See Table 2 below)

4.11 Reasons for Improvement in Information Dissemination

This was basically meant to try and assess the reasons which could have led to the improvement in dissemination of information as regards various hybrid maize varieties to the small-scale farmers, from the farmers' point of view. From the findings 50.0% of the respondents said the reason for improved information dissemination from, seed suppliers and distributors is because of an improvement in the extension services offered to them. Further, 14.5% of the respondents said the reason for improvement in information dissemination is because of improved training to the small-scale farmers on the use of the various maize varieties, and finally, 35.5% of the respondents believe that there are other reasons that have lead to this improvement in information dissemination, such as through radios programmes and other static methods of communication. Details of the responses are shown in the Table 5 below.

Table 5: Views on Maize seed Quality, Reasons for Choice, Views on Information Dissemination and Reasons for Improvement

CHARACTERISTIC	NUMBER OF RESPONDENTS	PERCENT
SSF VIEWS ON MAIZESEED QUALITY		
Strongly agree	41	37.3
Agree	34	30.9
Disagree	12	10.9
Strongly disagree	2	1.8
Not sure	21	19.1
Total	**110**	**100**
REASONS FOR CHOICE		
Availability	21	20.2
Affordability	13	12.5
Accessibility	20	19.2
Knowledge	25	24
Other	25	24
Total	**104**	**100**
VIEWS ON INFORMATION DISSEMINATION		
Improved	79	71.8
Not Improved	27	24.5
Not Sure	4	3.6
Total	**110**	**100**
REASONS FOR IMPROVEMENT		
Improved Ext services	55	50
Improved training	16	14.5
Other Reasons	39	35.5
Total	**110**	**100**

Source: Own survey Data

4.12 Qualities Considered in Hybrid Maize Seed

The reasons underlying the small-scale farmers choice of hybrid maize seed was viewed in terms of the specific qualities that they look for in a given maize variety, and they do this based on their past experience. For instance, owing to the uncertainty in the amount of rains received in each of growing seasons of the recent past the farmers would consider choosing a maize variety which is drought resistant or that which is early maturing so as to minimize losses as a result of drought. Other farmers will consider the yields; pest resistance, storage quality, etc associated with the given hybrid maize seed. First and fore most, the small-scale farmers who were the respondents were asked to indicate the various factors and these were then ranked according to their importance.

From the findings 54.2%, of the total respondents indicated that they storage qualities of the maize seed variety, 66.7%, consider drought resistance, 60% said they considered the growing season, 67% consider yield and 55.3% consider pest resistance. Therefore, respondents' choice of the type of hybrid maize seed to grow in a given season is influenced by drought resistance, yield, storage qualities, growing season and pest resistance. Details of their responses are shown in the Table 6 below.

Table 6: Hybrid Maize Qualities that Respondents Consider

FACTOR	NUMBER OF RESPONDENTS	PERCENT
Storage Quality	52	54.2
Drought Resistance	68	66.7
Growing Season	54	60
Pest Resistance	52	55.3
Yield	64	67.4

Source: Own Survey Data

CHAPTER FIVE
CONCLUSIONS AND RECCOMMENDATIONS

5.1 Introduction

This chapter presents the conclusions and recommendations that were made after analyzing the study findings. Conclusions were made with regard to the research objectives and hypothesis so as to see whether the desired results have been arrived at. Recommendations of this study were made based on the conclusion as well as the rationale of the study.

5.2 Conclusions

Small-Scale Farmers in the area have either used maize seed produced by either one or more of the seeds produced by the seed companies in question. Pannar seed is the most popular seed among the SSF in the area, followed by Seed Co seed, Zamseed and then MRI seed as the least popular seed in the area. The reasons for these differences in popularity could be attributed to the differences in information dissemination as well as aggressiveness of propagating the maize seed news to the SSF. Thus, the SSF in the area are well-informed about the various maize seed cultivars on the market even though they may not have used all the four different products.

Further, small-scale farmers access information about various maize seed cultivars on the market mainly through electronic media (such as radios and Televisions) as well as through neighboring farmers and less often through the print media (because of illiteracy) and field-days. In fact, SSF rarely access information through other sources such as visiting relatives from urban areas.

Moreover, with liberalization of the seed industry small-scale farmers believe that there has been an improved maize seed quality supplied to the market for production. The reason why is because of improvements in yield, storage qualities and the growing period of the maize seed produced and sold on the market.

Small-scale farmers also believe that there has been an improvement in information dissemination regarding various maize seed cultivars on the market after liberalization of the seed industry as compared to the period before liberalization actually took place. The reason being that there are improved extension services, and other relevant reasons such as changes in advertising strategies coupled with demonstrations at field-days as well as during agriculture shows, as opposed to SSF training on how to use the seed.

Thus, liberalization of the seed industry has lead to improved information dissemination as well as improved quality of seed supplied on to the market.

5.3 Recommendations

- Zambia Seed Company (Zamseed) and the Maize Research Institution (MRI) should improve on their distribution strategies, information dissemination to compete favorably with the other seed suppliers like Pannar Seed Company and Seed Co Limited which are distributing maize varieties.

- Zambia Seed Company should phase out those maize seed varieties which have lost the vigor and replace them with new and improved varieties..

- Government should work in partnership with the seed suppliers in order to improve extension services to small-scale farmers so as to offer training to the small-scale farmers on how best to use the various hybrid maize seed varieties to maximize yield.

- A much more intensive econometric study should be conducted in the same field to determine the extent to which the identified factors affect the small-scale farmers' choice of maize seed varieties.

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Appendix

Appendix 1: Questionnaire:

MAIZE SEED VARIETY AWARENESS AND SOURCES OF INFORMATION AMONG SMALL-SCALE FARMERS IN KAPIPRI MPOSHI, ZAMBIA

QUESTIONNAIRE NUMBER……..

Dear Respondent,

You have been randomly selected to help with information on maize seed variety awareness and sources of information in your area. This information is required as part of an academic research exercise and will by no means be used against you. Your co-operation will be highly appreciated.

1.0 GENERAL INFORMATION

1. Name of the farmer......................................
2. Age of farmer..
3. Sex ....
   1- Male 2- Female.
4. Marital status..
   1- Single. 2- Married 3- Other, specify...........
5. What is your household size?.........................
6. Number of children below 12 years..................
7. Number of children above 12 years.................
8. Education level of farmer.............................
   a) Primary b) Secondary c) Tertiary d) None

2.0 SOCIO-ECONOMIC STATUS

9. Main source of this income...
   a) Beer brewing 1- Yes 2- No
   b) Wages 1- Yes 2- No
   c) Fishing 1- Yes 2- No
   d) Remittances 1- Yes 2- No
   e) Charcoal burning 1- Yes 2- No
   f) Food Crop farming 1- Yes 2- No
   g) Cash crop farming 1- Yes 2- No
   h) Piece works 1- Yes 2- No
   i) 3- Other, specify..............

10. Livestock ownership

Livestock	No. owned	Reasons for keeping
Sheep		
Pigs		
Cattle		
Goat		
Chickens		
Other		

11. If cattle are owned do you use them for draft power? 1- Yes 2- No

12. Other assets owned

Asset	Quantity	Operational
Ox-drawn plough		
Bicycle		
Wheelbarrow		
Hoe, Rake, etc..		
Other		

13. What type of house do you live in?

1-burnt bricks iron roofed 2- burnt bricks grass thatched

3-mud wall iron roofed 4- mud wall grass thatched

14. Main source of labour used at the farm?

1-Hired labour 2- Household labour 3- Other....................

15. What size of land did you cultivate last season? ....

3.0 KNOWLEWDGE AND SOURCE OF MAIZE SEED CULTIVARS

16. Farm size...

17. Is the Farm in qn. A2 owned? ....

1-Yes 2-No 3- Other, specify................

18. How long have you been Farming?

1) < 1yrs 2) 1- 2yrs 3) 2-4 Yrs 4) Above 4 Yrs

19. What type of farming are you engaged in?

1- Livestock 2- field crop 3- Both 4- Other specify............

20. Have you grown maize before? 1- Yes 2- No

21. If Yes to qn.21, did you grow maize last season (2004/2005)?

1-yes 2-no

22. If yes to qn.22, which maize varieties did you grow?

Local varieties	1- Yes	2- No
Hybrids	1- Yes	2- No
Open pollinated varieties (OPVs)	1- Yes	2- No

Other, specify..

23. Are these the same variety(s) you grew in the previous season (2003/2004)?

1- Yes 2- No

24. What variety did you grow?..

25. What was your reason for choice?..

1- Low yield	1- Yes	2- No
2- Not accessible	1- Yes	2- No
3- It is expensive	1- Yes	2- No

4- Other ....

26. Where did you get the maize seed that you used last season?

Neighbouring farm	1- Yes	2- No
Stored grain	1- Yes	2- No
Retail shops	1- Yes	2- No

Other..

27. Have you ever used any hybrid maize seed produced by the following seed companies?

a. Seed Co	1- yes	2- No
b. Pannar	1- yes	2- No

c. Zamseed 1- yes 2- No

d. MRI 1- yes 2- No

28. Indicate in the table below when you first used the hybrid seed from the Supplier of your choice (in the above question) as well as what your most popularly used maize seed varieties from each.

	< 1yr ago	1- 2yrs ago	2-4 Yrs	Above 4 yrs ago	maize seed used used
Seed Co					
Pannar					
Zamseed					
MRI					

29. How did you get to know about the seed?

1- Electronic (ie through TV, radio adverts) 1- yes 2- No

2- Through the print media (ie news papers, etc 1- yes 2- No

3- Through field-days 1- yes 2- No

4- Through neighboring farmers 1- yes 2- No

5- Others specify................................

30. How many seasons have you used the hybrid seed from the company(s) of your choice above?

Maize variety from...	No. of seasons used
Seed Co	
Pannar	
Zamseed	
MRI	

4.0 REASONS FOR CHOICE, VIEWS AND INFORMATION DISSEMINATION

31. Which hybrid maize seed product did you use last season?

1- Seed Co 1- yes 2- No

2- Pannar 1- yes 2- No

3- Zamseed 1- yes 2- No

4- MRI 1- yes 2- No

32. What influenced the choice of the seed variety(s) that you used last season?

Availability 1- Yes 2- No

Affordability 1- Yes 2- No

Accessibility 1- Yes 2- No

Knowledge 1- Yes 2- No

3- Others specify..

33. In general what do you consider when selecting the type of maize seed variety to grow?

a) Drought resistance 1- Yes 2- No
b) High yield 1- Yes 2- No
c) Pest resistance 1- Yes 2- No
d) storage qualities 1- Yes 2- No
e) Growing Season 1- Yes 2- No

34. In general would you say information dissemination from the seed distributors has improved?

1- Yes 2- No 3- I don't know

35. If yes to qn.34, what is the reason for this improvement?

a) Improved extension services to farmers.

1- Yes 2- No

b) Improved training to SSF on how best to use the seed to maximize the yield.

1- Yes 2- No

c) Other specify...

36. There is an improvement in the quality of seed currently being supplied on the market

a) Strongly agree
b) Agree
c) Disagree
d) Strongly disagree
e) Not sure