EFFECT OF MASIBUYELE EMASIMINI AGRICULTURAL PROGRAMME ON FOOD SECURITY AT NEW FOREST IRRIGATION SCHEME IN BUSHBUCKRIDGE MUNICIPALITY OF EHLANZENI DISTRICT IN MPUMALANGA PROVINCE

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R.R SHABANGU

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RHULELA REGINAH SHABANGU

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SUPERVISOR: DR E.M. ZWANE

CO-SUPERVISOR: DR D. B. AFFUL

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DECLARATION

I, Reginah Rhulela Shabangu, declare that the dissertation hereby submitted to University of Limpopo for the degree Masters of Agricultural extension has not been previously submitted by me for a degree at this or any other university; that it is my work in design and in execution and that all material contained herein has been duly acknowledged.

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Ms Shabangu RR Date

ABSTRACT

Food insecurity is a huge challenge for any government. Since food is a human need, it is often at the priority of any endeavour, policy or strategy undertaken by a household or government.

The issue of food insecurity and the use of agricultural intervention to address it were at the centre of this study. Agricultural reform programs such as the Masibuyele Emasimini programme investigated here are argued to be the best mechanism to address food insecurity in rural areas of developing countries. This understanding, however, does not go unchallenged with some scholars believing that these programmes only mask the problem and once withdrawn an even bigger problem would arise. This study investigated why there is little indication of farmer growth despite the introduction of the Masibuyele Emasimini programme in the new forest irrigation scheme. A number of aspects such as increases in production, skills set, challenges, etc., were investigated to get a comprehensive picture of what is happening on the ground. A descriptive approach was followed in presenting the data.

The major challenges faced by the programme are: poor communication, limited mechanization, insufficient production inputs late arrival of seeds and fertilizers, inexperienced drivers, and lack of consultation. From this analysis of the challenges presented by both farmers and extension officers, it becomes apparent that there is a failure of government to deliver on time. Secondly that there is a mismatch between the demand and supply of inputs, two aspects play a role firstly budgetary constraints that might limit the availability of inputs and secondly insufficient budgeting due to miscalculated demands.

The study revealed that any programme meant to uplift the poor should not be a top down approach that is drafted and imposed on people. Proper consultation during the planning phase should be sought, but more crucial is the on-going communication and consultation with the people on the ground. The study then argues that poor monitoring also had a role in the weakening of the sustainability of the programme. Administrative issues on the part of government and service providers discouraged farmers and weakened the relationship of farmers with government; it also decreased the momentum of the programme.

Key words: Sustainability, Food insecurity, Food security, Smallholder farmer, Masibuyele Emasimini programme.

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DEDICATIONS

Dedicated

To

My family: Fortress, Reckon and Reveal.

ACRONYMS/ABBREVIATIONS

BBR	Bushbuckridge
CBO	Community Based Organization
CRDP	Comprehensive Rural Development Program
DAFF	Department of Agriculture Forest and Fisheries
DARDLA	Department of Agriculture, Rural Development and Land Administration
DFID	Department for International Development
DOA	Department of Agriculture
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEAR	Growth Employment and Redistribution
HA	Hectare
IS	Irrigation Scheme
KG	Kilogram
KM	Kilometre
LED	Local Economic Development
ME	Masibuyele Emasimini
NGOs	Non-Governmental Organizations
No	Number
PDF	Previously Disadvantage Farmers
PGDS	Provincial Growth and Development Strategy
R	Rand
RSA	Republic of South Africa
SPSS	Statistical Package of Social Sciences
SSA	Statistical South Africa
UL	University of Limpopo
USA	United States of America
WUA	Water Users Association

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CHAPTER 1
INTRODUCTION AND BACKGROUND

1. INTRODUCTION

1.1 Background to the Study

During the year 2000, the Republic of South Africa committed itself to achieve eight global development objectives, which are better known as the Millennium Development Goals. The first and foremost goal was and still is the eradication of extreme poverty and hunger (Republic of South Africa 2010).

South Africa committed itself to achieving these objectives although faced with a high income inequality and absolute poverty compared to countries of similar development (Stats SA 2000). The South African government has recognized that there is a huge gap between the country performance and the reality on the ground. Various organizations and governmental agencies have tried to address the issue of the distribution of wealth through economic policies/ strategies such as the Restitution of Land Rights Act 1994, the Growth Employment and Redistribution (GEAR). But the country faces a more critical problem, namely, that of food insecurity; that threatens the livelihoods of a great number of households. It is in this regard that the government has put in place, various systems and interventions to curb the issue of food insecurity (Department of Agriculture 2002).

It is, however, important to understand that food insecurity in the country has been exacerbated by factors often beyond a household's control. In the past few years South Africa has gone through an economic downturn which has increased the prices of food while also causing major job losses, especially for the unskilled and semi-skilled people who are arguably more affected by issues of food insecurity to begin with (Jacobs 2009).

The seriousness of food insecurity is based on the biological fact understood by every living creature regardless of location or species that for life to be sustained food is needed: food insecurity threatens this fact. It is for that reason that the South African constitution (section 27) enshrines the right to sufficient food. The constitution obliges the State to provide legislation and other supporting measures to ensure that all citizens are enabled to meet their basics food needs (Republic of South Africa 1996).

However, rural households in most developing countries like South Africa are not food secure and are unable to meet the daily dietary needs for their respective households. According to Bonti-Ankomah (2001) and Reily, Mock, Cogill, Bailey & Kenefick (1999) to achieve food security, households should have sufficient availability and adequate access to physical food supplies through their own production, market or other sources, and that those food supplies be appropriately utilized to meet the specific dietary needs of individuals. Most of the households, in particular those living in the former homelands practice smallholder agriculture as the main production strategy to achieve food security and meet their dietary needs (Machethe, 2004; Altman, Hart & Jacobs 2009).

1.2 MASIBUYELEEMASIMINI AGRICULTURAL PROGRAMME

The Masibuyele Emasimini agricultural programme was introduced in 2005/6 by the Premier of Mpumalanga Province, Thabang Makwetla. This was after the Premier's observation that a big percentage of land, in rural Mpumalanga, was unutilized. Turning such land into productive agricultural land was to ensure sufficient food production and could consequently enable citizens to meet their basic food needs (Masibuyele Emasimini 2011).

This would be in line with the demands of section 27 of the South African constitution (RSA 1996). This is vital in light of the fact that rural households in most developing countries are not food secure and thus unable to meet their dietary needs (Masibuyele Emasimini 2009). The establishment of the Masibuyele Emasimini programme was indeed seen as a way of ensuring that food security is realised. According to Masibuyele Emasimini (2009) the goal of the ME programme is to increase community food production so as attain household food security.

The objectives of the programme ME are to provide the following:

- Mechanization support which will be provided free of charge to the households who are producing for household food consumption and smallholder farmers;
- Production input support; seeds, fertilizers and chemicals;
- Technical and advisory support in the form of extension officers; and
- Basics infrastructure support for production; fencing materials, drilling of bore holes and irrigation infrastructure.

These objectives are realized through the following:

- Encouraging community members to till fallow land and realize economic benefits and preventing agricultural land being converted to other competing land uses;
- Provision of production inputs; and
- Training of community members in tractor operations and production aspects as to ensure sustainability of the programme.

1.3 DEFINITION OF CONCEPTS

1.3.1 Food security

Food security is a sustained and access by all social groups and individuals to food adequate in quantity and quality to meet nutritional needs (Barraclough 1991). At household level, it also implies stability in access to food through sufficient food provisioning and or food purchasing power whatever the season of the year. Bakker (1990, p.62) indicates that a state of food insecurity exists when members of a household have an inadequate diet or face the future possibility of an inadequate diet.

According to Bakker (1990, p.64) food insecurity is primarily viewed as a household problem which can occur in three ways, i.e., (i.) temporary, (ii) Cyclical and (iii.) Chronic. Temporary food insecurity is experienced because of shortage in food supply owing to unforeseen circumstances such as excessive drought. Cyclical food insecurity is experienced when a household repeatedly lacks an adequate diet at specific times during the year while, Chronic food insecurity exists when a household lacks on adequate diet for substantial portions of the year.

To determine a regional or national food security one must understand household food insecurity. For Bakker (1990) a more accurate description of regional or national food insecurity can be found by aggregating households by the types of food insecurity that they experience because such aggregation would reveal the percentage of households which face food insecurity, as well as the percentage that are food secure. At the household level, food insecurity leads to disproportionately high health and medical costs, high funeral expenses and low labour productivity (National Department of Agriculture and Land Affairs 2002).

1.3 2 Basic components of food security

According to National Department of Agriculture and Land Affairs (2002, p.8) access for all times to enough food for an active, healthy life can be related to three components: food availability, food access and food reliability:

a) Food Availability

It is the effective or continuous supply of food at both national and household level which is affected by input and output market conditions, as well as production capabilities of the agricultural sector. According to Annie (2009) food availability means that food is physically present because it has been grown, processed, manufactured, and/or imported. For example, food is available because it can be found in markets and shops; it has been produced on local farms or in home gardens; or it has arrived as part of food aid. This refers to all available food in the area, and includes fresh, as well as packaged food.

b) Food Access

Food access is an effective demand ability of a nation and its households to acquire sufficient food on a sustainable basis. It addresses issues of purchasing power and consumption behaviour.

It also refers to the way in which different people obtain available food. The way of accessing food is through a combination of means. This may include home production, use of left-over stocks, purchase, barter, borrowing, sharing, gifts from relatives, and provisions by welfare systems or food aid. Food access is ensured when everyone within a community has adequate financial or other resources to obtain the food necessary for a nutritious diet.

c) Reliability of Food

Reliability of food refers to utilization and consumption of safe and nutritious food.

1.3.3 Food Distribution

Food distribution is the equitable provision of food to points of demand at the right time and place. This spatial time aspect of food security relates to the fact that a country might be food secure at the National level, but still have regional pockets of food insecurity, at various periods of the agricultural cycle which is the case in Limpopo Province.

1.3.4 Smallholder Farmer

Smallholder farmer refers to a farmer who produces for food security and/or exclusively for market on an area more than one hectare but not exceeding 20 hectares on either dry land or under irrigation.

1.3.5 Mechanization

Mechanization services refer to a machinery service of ploughing, planting, harvesting and related farming activities to farming. Mechanization entrepreneur is duly registered entity that provides machinery services of ploughing and planting for a fee to the farmers.

1.3.6 Beneficiaries are, namely:

- The subsistence farmers which were going to be supported with agricultural production inputs, i.e., seeds, fertilisers and agro-chemicals, boreholes, drip irrigation, fencing as well as technical agricultural advisory services;
- The smallholder farmers which were going to be supported with mechanization services (tractors and implements), seeds and fertilisers, agro-chemicals, boreholes, infield irrigation fencing and technical agricultural advisory services; and
- Land reform assisted with mechanization which they are going to pay for it, because they regarded as commercial farmers.

1.4 PROBLEM STATEMENT

Failure of agricultural programmes in South Africa is a major concern, as these programmes are meant to reduce poverty, unemployment and to increase food security in some instances. The Masibuyele Emasimini program was introduced to the Bushbuckridge area with an intention of mobilizing people back to till the land for livelihood, secondly, to increase farm income and ensure households are food secured (Masibuyele Emasimini 2009). The program allowed farmers to produce in greater quantities than they previously could.

The problem investigated in the study is that there is no improvement in food production by smallholder farmers in the New Forest Irrigation Scheme, within the Bushbuckridge Municipality; despite the inception of the Masibuyele Emasimini Food Security Programme. The major challenges facing the Masibuyele Emasimini programme are not well understood and are not documented. Such challenges threaten the sustainability of the programme and prevent the achievement of its goals. The

expectation was that the implementation of the Masibuyele Emasimini programme, would lead to an increment in food production resulting in greater food security. However, observations suggest otherwise. It is therefore necessary to investigate the challenges that hinder the attainment of objectives of the programme.

1.4.1 Aim of the study

To determine the reasons of low crop production (yields) despite the introduction of the Masibuyele Emasimini Programme, as a strategy to reduce food insecurity.

1.4.2 Objectives of the Study

The objectives of the study are to:

- determine whether the beneficiaries were equipped with the necessary skills required for sustaining the projects;
- evaluate the progress of Masibuyele Emasimini programme in strengthening household food security
- determine the extent to which government expectations related to Masibuyele Emasimini programme were met;
- identify constraints of Masibuyele Emasimini programme as perceived by Extension Officers and beneficiaries;
- determine the relationship between the level of education and government expectations
- determine the relationship between skills training and government expectation; and
- determine the socio-economic factors affecting the household's food security in the study area.

1.4.3 Research questions

- Were the beneficiaries of Masibuyele Emasimini programme in new forest irrigation scheme equipped with the necessary skills required for sustaining the programme?
- What progress has the Masibuyele Emasimini programme had on the households of beneficiaries?
- To what extent government expectations related to Masibuyele Emasimini programme were met?

- What are the constraints that affect the implementation of Masibuyele Emasimini programme?
- What is the relationship between the level of education and the extent to which government expectations were met?
- What is the relationship between skills training and the extent to which government expectations were met?
- What are the major socio-economic that affects household's food security in the study area?

1.5 SIGNIFICANCE OF THE STUDY

The study identified the challenges faced by the Masibuyele Emasimini Programme. The findings will assist the Department of Agriculture in Mpumalanga to better understand the circumstances behind why the programme is not making the expected impact in the Bushbuckridge Municipality. From the studies finding amendments to this programme can be made to better implement the program in order to achieve the programs objectives and improve household food security in Bushbuckridge. However, the study's findings reach far beyond the Bushbuckridge area and can be used to enhance knowledge on similar agricultural programs so as to improve the productivity of these programs.

The study adds to the body of knowledge in the use of agriculture and agricultural programs to address poverty. It highlights/ illustrates areas that policy makers, government, NGOs and any other party that decides to implement such programs should look at.

1.6 LIMITATIONS OF THE STUDY

The study is limited to the New forest Irrigation Scheme in Bushbuckridge Municipality in Mpumalanga Province because of lack of resources to cover the other irrigation schemes.

1.7 ORGANISATION OF STUDY

Chapter two gives the body of knowledge better known as the literature review. It summarizes what is known, about the topic creating a framework in which argument and analysis of data can be derived and fits this study into the holistic picture of food security and agriculture. Chapter three describes the methodology used to conduct the study; it gives rationale as in to why such a design was followed. Chapter four entails the description of socio-economic factors of the farmer, extent to

which beneficiaries were trained with necessary skills, the extent to which the government expectations were met as well as constraints encountered during the process and action taken to address them. Chapter five integrates all the chapters in a final argument and recommendations that will conclude this research thesis by summarizing the major challenges facing Masibuyele Emasimini in Bushbuckridge, link every objective to the aim at the study and directly address the aim and food security in general.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

In Chapter one, the statement of problem, aims of the study were stated. It was indicated that the study was among several other aims structured to assess the sustainability of the Masibuyele Emasimini program while at the same time exploring the challenges the scheme has faced as far as providing food security to the residents of New forest in Mpumalanga is concerned. This chapter provides a theoretical framework against which respondents' opinions regarding the success and the challenges of the Masibuyele Emasimini program are judged. First, the chapter explores the concept food security and its costs before examining the general food security/insecurity situation in South Africa. The chapter also focuses on the role of small-scale farmers with regard to ensuring food security and the challenges that they encounter.

2.2 THE CONCEPT FOOD SECURITY

Countries all over the world strive to ensure that their citizens have enough to eat any time and therefore are food secure. Unfortunately, at a time or another, even the most developed countries have faced food security related problems. According to Nord and Golla (2009) for example, rich nations like the USA sometimes do not have enough food for their citizens. Furthermore, Che and Chen (2002) reveal that, in 2002, 10% of Canadian households were food insecure. In Australia, over 5% of the population were food insecure in the same period (Booth & Smith 2001). According to FAO (2010) developing countries present a worse scenario with regard to food insecurity. In Africa for example, about 239 million people are undernourished. Developing regions namely, East Asia, South Asia and Latin America are a little better as compared to Africa (Brown, Laffan, and Wight 2008). Nevertheless, these countries have experienced enormous food price increases since 2008, making it difficult for their citizens to buy the required food products. Brown et al. (2008) for instance, reveal that the prices of soybeans, a key staple food for Indonesians, doubled in one year and caused serious problems for people, resulting in street protests. Similarly the Egyptians were forced to come out into the streets because of increases in the prices of bread and cooking oil. Protests also broke out in Senegal over rice price hikes. China also faced a tough situation due to a 20% increase in food prices. Food inflation (increase in food prices) also struck Vietnam and India. Global food prices moved higher to record level, since the start of 2011(MacFarquhar 2011) dragging

the world into another crisis in less than three years' time (Krugman 2011). This crises led to another wave of widespread protests broke in the world, especially in the Arab countries. The high-ceiling prices of cereals and oil are having terrible impacts on poor people who spend a major proportion of their income on basic foodstuffs (Krugman 2011). In all the cited case, there was the population's inability to have access to sufficient food, and therefore were food insecure.

Food security can therefore be defined as physical, social and economic access to sufficient, safe and nutritious food by all South African at all times to meet their dietary and food preferences for an active and healthy life. At household level, it also implies stability in access to food through sufficient food provisioning and or food purchasing power whatever the season of the year (FAO 2007). FAO (2004) conceptualizes it as follows:

"Food that is available to everyone at all times, that they have means of access to it, that it is nutritionally adequate in terms of quantity, quality and variety, and is acceptable within the given culture. Only when all these conditions are in place it can be said that a population is food secure".

On the other hand, food insecurity, the opposite of food security connotes a situation of food absence at household, regional and national levels.

This definition has three distinct but inter-related components, namely:

Food availability: effective or continuous supply of food at both national and household level. It is affected by input and output market condition, as well as production capabilities of the agricultural sector (FAO 2007).

Food access or effective demand: ability of nation and its household to acquire sufficient food on sustainable basis. It addresses issues of purchasing power and consumption behaviour (FAO 2007).

Reliability of food: utilization and consumption of safe and nutritious food (FAO 2007).

Food security is becoming an increasingly important concept in South Africa. According to Devereux, Sabates-Wheeler, and Guenther (2008) the primary food security objective facing most governments is to facilitate the movement of food insecure households to increasingly food secure states. Food security is a fundamental need, basic to all human needs and the organization of social

life. Access to necessary nutrients is fundamental not only to life per se, but also to stable and enduring social order. A state of food security ensures that all members of every household in a nation have access throughout the year to a diet that is adequate for leading a continued, healthy and active working life.

A society which can be said to enjoy food security is not only one which has reached a food norm but one which has also developed the internal structures that will enable it to lower the achieved level of food consumption (Devereux et al. 2008). Households that are poor are vulnerable to food insecurity. Poverty in itself is relative; it implies that some groups are significantly worse off than others. According to Chazan and Shaw (1988) the food problem is closely linked to issues of food availability. Access to food products in many parts of Africa is glaringly unequal. Frequently, food is visible in towns and countryside but it is not within reach to many segments of the population.

2.2.1 Household Food Security Trends in Rural Areas

The most significant aspect of empirically and theoretically driven advancement of the concept of food security is the awareness that food security is no longer seen simply as a failure of agriculture to produce sufficient food at the national level, but the failure of livelihoods to guarantee access to sufficient food at the household level (Devereux & Maxwell 2000). The Department of Agriculture (2002) indicates that South Africa is food secure and self-sufficient at national level whereby the country has the ability to produce its main staple foods such as maize and wheat, ability to export its surplus food and import food from any country in order to meet its food requirements. It is further stated that the country managed to meet its food needs for its growing population from domestic sources during the past 20 years (Department of Agriculture 2002).

Moreover, the country has also managed to meet the needs for its main staple food, such as maize by over 100%, wheat by 95%, and livestock by 96% and dairy products by 100% from domestic resources (Department of Agriculture 2002). While South Africa may be food secure and self-sufficient in food production at national level, large proportion of the population at household level remains food insecure with approximately 14.3 million South Africans vulnerable to food insecurity (de Klerk, Vogel, de Swardt, & Kirsten 2004; Altman, Hart & Jacobs 2009; Department of Agriculture 2002).This vulnerability is most prevalent among people living in the former homelands of the country (van Averbeke & Khosa 2007; de Klerk et al. 2004).

2.2.2. Determinants and Indicators of Rural Household Food Security

The concept of food security points to two parts namely; access to available food and adequate nutrient intake for sustainable health (Bickel, Nord, Price, Hamilton & Cook 2000; Jacobs 2009). The determinants of household food security frequently used include food availability, accessibility and adequacy (Bonti-Ankomah 2001). These factors are directly and indirectly interrelated in that available food must be accessible to households and all members of the households. The Department of Agriculture (2002) indicates that 39% of the population in South Africa do not meet their daily energy requirement of 2000kcl per day, which results in high stunting rate.

A number of researchers have reviewed the concept of food security and tried to further define various components of food security. One of such component is food availability. Bonti-Ankomah (2001) and Coates, Frongillo, Roger, Webb, Wilde and Houser (2006) refer food availability as food supply which should be sufficient in quantity and quality and also providing variety of food choices. Food accessibility should address the demand for food which is influenced by economic factors, physical infrastructure and consumer preferences (Bonti-Ankomah 2001). Moreover, for rural households to be food secured, food at their access should be adequate both in quantity and quality. Food availability is a function of the combination of domestic food stocks, commercial food imports, food aid, and domestic food production, as well as the underlying determinants of each of these factors.

However, food access is influenced by the aggregate availability of food through the latter's impact on supplies in the market and, therefore, on market prices. Again, food access is further determined by the ability of households to obtain food from their own production and stocks, from the market, and from other sources. These factors are, in turn, determined by the resource endowment of the household which defines the set of productive activities they can pursue in meeting their income and food security objectives.

According to Jacobs (2009) household food security also depends substantially on household income and wealth status. A low-income household is more likely to suffer food shortages than a wealthier household. Food expenditure comprises a large share of the spending of poor households, making them relatively more vulnerable to the impacts of high food price. The Integrated Food Security Strategy of South Africa indicates that 2.8 million households spent less R1000 per month while 1.63

million households spent more than R3500 per month on food (Department of Agriculture 2002; Aliber 2009; Romer-Lovendal and Knowles 2006).

All other factors remaining constant, changes in income alter the quantity and quality of foods purchased and consumed (Oldewage-Theron, Dicks & Napier 2006). Price movements of food and non-food items also affect the ability to buy food. For example, to cope with rapid food inflation a household could cut its food purchases and adjust its consumption patterns. A typical coping strategy is to buy smaller quantities of food, switch to different types of food, reduce dietary diversity and skip meals (Oldewage-Theron et al. 2006). Aliber (2009) points out that high dependency ratio on food purchase means that losing an income-earning opportunity which can make a household to be food insecure.

2.2.3 Contributions of Smallholder Agriculture towards Food Security in Rural Areas

The role of agriculture in the rural economy is generally acknowledged, however there is no consensus whether smallholder agriculture is the most appropriate way to fight food insecurity in developing countries (Aliber 2005; Machethe 2004; de Klerk et al. 2004;van Averbeke & Khosa 2011).Machethe (2004) noted that smallholder agriculture is capable of providing for food security through increased food supply, employment creation and increased farm income as well as providing for household consumption. Machethe (2004) argues that smallholder agriculture is simply too important to employment, human welfare, and political stability in most developing countries to be either ignored or treated as just another small adjusting sector of a market economy.

Increased food supply provides producers with greater possibilities and affords consumers more food choices at reasonable prices (DFID 2004). On the basis that the majority of rural people are engaged in smallholder production, improvement in the smallholder agricultural sector increases the chances of addressing food insecurity (Machethe 2004).However such an objective can only be attained with a vibrant smallholder agricultural sector (Machethe 2004). Machethe (2004) recognizes the role of the smallholder sector in achieving food security through increased production and productivity.

The smallholder farm sector has been recognized as an important sector in employment creation in most developing countries. The smallholder agricultural sector provides employment to at least one million households at national level in South Africa (Ministry for Agriculture and Land Affairs

1998). At provincial level, in Limpopo Province for instance, smallholder agriculture has also been noted to be contributing 25 percent of the jobs (Limpopo Department of Agriculture 2008).

In general, the agricultural sector contributes up to 7.2% of formal employment in South Africa (Baiphethi & Jacobs 2009).Most of the smallholder farmers in developing countries produce food for subsistence (Kalibwani 2005). Taking into consideration that smallholders produce crops for their own livelihood, Kalibwani (2005) argues that smallholder farmers have the potential to produce marketable surpluses. The Strategic Plan for South African Agriculture indicates that there are approximately 3 million smallholder farmers who produce food primarily to meet their household consumption needs (Department of Agriculture 2001).

Smallholder agricultural production is critical in achieving household food security through increased income for the majority of the rural poor. Researchers have found that the reason why agriculture has become critical is that it is regarded as a source of livelihoods with approximately 70 percent of the rural people providing employment which consequently generate income for their household (Feynes and Meyer 2003). It is important for agriculture to generate economic benefits but the concern has been that smallholder farmers derive their livelihoods by cultivating small pieces of land, and supplementing their income and food supply (Coetzee 2003). While smallholder agriculture accounts for a large proportion of agricultural production, it is not only a source of economic activity, production and income but also constitutes an important part of rural culture and social organization (Feynes and Meyer 2003).

From the preceding paragraphs it can be seen that it is vital for communities all over the world to ensure that they are food secure because the costs of food insecurity could be enormous as they manifest themselves at all levels of social and economic life. At the household level, food insecurity does not only lead to high health and medical costs but also to high funeral expenses and low labour productivity. Within the household, food insecurity often affects children and women, the most vulnerable members of the family. On the other hand, costs associated with food-insecurity at the intra-household level relate to slow educational development (often of female children), stunting, etc. At the national level, food insecurity can lead to social costs as diverse as high policing, criminal and justice expenses, and low investor confidence, and its resulting loss of capital investments.

2.3 FOOD SECURITY IN SOUTH AFRICA

According to the 2004 report of the Food and Agriculture Organization (FAO) on the state of food insecurity in the world, more than 814 million people in developing countries are undernourished. Of these people, 204 million live in countries of sub-Saharan Africa, including South Africa. South Africa has made enormous strides in the political and economic fields since 1994. Nevertheless the country is plagued by poverty and unemployment and by steep food and fuel prices coupled with high-energy tariffs and increasing interest rates. These conditions have negatively impacted on the ordinary poor South Africans forcing them into a situation where they continuously struggle to meet their basic household needs. Even when food is available in markets, it may not be accessible to specific households. Indeed FAO (2004) has observed that many years after democracy a big percentage of South Africans do not have enough money to satisfy their household needs. Not surprisingly, Altman et al. (2009) note that millions of dollars are spent annually on food aid programmes intended to alleviate hunger and poverty.

According to Department of Agriculture (2001) at the national level, South Africa is food secure since it produces its own foods, exports its surplus food, and imports what it needs to meet its food requirements. National food security indicators show that South Africa has been meeting its food needs of its growing population from domestic sources in the past 20 years though rice is normally imported. Food security indicators for horticultural products and sugar are also over 160%, showing the strong position the country enjoys as a fruit exporter. In spite of the above observation, however, Esterhuizen (2013) notes that, by the year 2000, demand for poultry products had already outstripped domestic production by an estimated 22% and were expected to increase to 92% in 2010 and to 192% in 2020.

But whilst the picture for food production at national level is relatively satisfactory, the situation at household level is quite different. Indeed, Statistics South Africa notes that 35% of the total population or 14.3 million South Africans are vulnerable to food insecurity. Those who are vulnerable include women, children and the elderly. The elderly are particularly more vulnerable than any other group in South Africa (Stats SA 2000). In 1996, nearly a third or 2.8 million of households spent less than R1 000 per month, while only 18% or 1.63 million households spent more than R3 500 per month.

The above statistics imply that South Africa has many poor, food-insecure people and a few wealthy ones. The distribution of poverty in the country is uneven in its spread and intensity. While Gauteng and the Western Cape are wealthier provinces with the least number of poor households at less than 12% each, the Free State, Eastern Cape and Northern provinces have the worst of poverty. In the middle group are Mpumalanga, KwaZulu-Natal, Northern Cape and North West Provinces. The average household of Gauteng spends about R7742 per month compared to R2665 in the Eastern Cape. Within the provinces there is an also unequal level of poverty according to urban and rural location, race and gender (Stats SA: 2000).

Some researchers believe that the best available direct measure of food insecurity is an estimate of the adequacy of daily energy intake. Using seven-day recall expenditure data, it was estimated that 39% of the population (14, 8 million people) did not meet their daily energy requirement (2000kcal/day) (Department of Agriculture 2002). Compared to international ranges, protein energy malnutrition as measured by stunting levels is a moderate public health problem in South Africa. The national stunting rate for young children ranges between 23% and 27%. This means that approximately 1, 5 million children under the age of 6 years are malnourished.

Among the ultra-poor (that is, the poorest twenty percent of households), the rate is 38%, while it is only 6% among the rich. The highest stunting rates occur in the Northern Province (34, 2%), Eastern Cape (28,8%) and Free State (28,7%). In contrast, Western Cape (11, 6%) and Gauteng (11, 5%) exhibit low stunting rates by international standards. Whereas the three provinces of the Eastern Cape, KwaZulu-Natal, and Northern Province house 52% of the country's children, an estimated 60% of all stunted children and two-thirds of poor people live in these three provinces. Anaemia and marginal vitamin A status are widespread micronutrient deficiencies, affecting between 20 and 30% of young children. Children in rural areas and those of mothers with limited education are worst off.

From the contents of the preceding paragraphs it is evident that the majority of South Africans, especially those living in the rural areas are food insecure. Indeed, the establishment of the Masibuyele Emasimini (ME) programme to mitigate the problem in a rural area in Mpumalanga could not have been more fitting. However, as indicated in chapter one, whether Masibuyele Emasimini was able to achieve its objectives is the subject of investigation in this study.

In the next section, the historical origins of food insecurity in South Africa are explored.

2.4 HISTORICAL ORIGINS OF FOOD INSECURITY IN SOUTH AFRICA

Colonial and apartheid policies in South Africa were designed specifically to create general conditions that were unfavourable to the well-being of black people in the country; especially those who lived in the former homelands. In order to explore the impact of Masibuyele Emasimini agricultural programme on which this study is focused, and in order to understand the challenges the project has faced with regard to ensuring food security, and in order to ensure that the programme achieves its goals, it is vital to understand these historical processes.

Having evolved at the turn of the 20th century from an agrarian setting through the rapid growth of commodity markets that sprung around major industrial mining, urban population and commercial agriculture centres, African farmers and entrepreneurs had successfully participated in the growing commodity markets. This, they did, under conditions of relative land abundance, low population size, low production, processing and distribution technologies, weak government interventions and relatively undistorted markets. During this time, food insecurity and poverty among the majority African population, which at the time was largely constituted of independent producers and entrepreneurs, was almost non-existent. Nevertheless, with the institutionalization of apartheid, South African Black majority, were now expected to provide wage labour to mining, industry and large scale agriculture, changing the situation of relative food security among the majority population (Department of Agriculture 2002).

Coetzee (2003) notes that forced by social and economic imperatives needs, successive apartheid governments throughout the greater part of the 20th century crippled and African farming and entrepreneurial development; effectively making the white farmers the chief beneficiaries of industrial development. Urbanization and industrialization led to the decline of African farming. This eventually led to a gradual loss of agricultural and rural capital, wealth, farming and entrepreneurial skills and experience among Africans; effectively putting a halt to rural agricultural and entrepreneurial activities. This created contemporary poverty and food insecurity among black people in South Africa.

Urban blacks were not any better. They migrated from the created homelands and were located far from places of work and from the general white population. Their role was for the primary purpose of providing labour to the mines, industries and the general white population. They were not only denied a good education but also proper health and social services. De Klerk et al. (2004) note that it is these historical legacies that led to the current situation, in which a majority of citizens (particularly Africans) are vulnerable to food insecurity despite the good food security conditions at national level.

It is against this backdrop that programmes like Masibuyele Emasimini has been put in place to ensure food security in the communities. In the ensuing paragraphs the role and objectives of the Masibuyele Emasimini agricultural programme in ensuring food security is explored.

2.5 EXPLORING THE ROLE AND OBJECTIVES OF THE MASIBUYELE EMASIMINI (ME) AGRICULTURAL PROGRAMME

Introduced as an intervention to mobilize Blacks back to agriculture to sustain their livelihoods, the major goal of ME is to increase community food production to ensure household food security, especially for the poor and vulnerable household. But Masibuyele Emasimini was also started as an intervention to provide mechanization support to the poor farming communities whose land was lying fallow. Such communities were to be encouraged to participate in agriculture by tilling their fields or even undertake cultivation activities in their backyards. In order to address the imbalances of the past, Masibuyele Emasimini targeted only those beneficiaries who had been previously excluded from past government interventions. The project was also supposed to supply to the neighbouring communities with food at affordable prices. This was supposed to be the case in instances where surplus food was produced by the project. It was also envisaged that proper implementation of ME would not only create jobs for the local community, but also increase the participants' income through crop sales. Where possible, Masibuyele Emasimini was also supposed to promote other sectors in rural areas through the agricultural backward and forward linkages. From the foregoing observation, it can be seen that whilst ME had several other objectives, it was a programme that was essentially to ensure food security at the household level.

2.5.1 Ensuring Food Security at Household Level

Food insecurity continues to threaten large proportions of households in third world countries though it is also common among the absolute poor in middle income countries and some rich countries.

Against this observation, the ME programme in Mpumalanga ventured out as indicated to ensure that the local communities of New Forest are food secure. But in order to establish whether the programme achieved one of its objectives (ensuring food security), it is vital to explore how communities make sure that they are food secure.

According to Coetzee (2003) food insecurity, at a household-level, government plays a critical role in ensuring that households are food secure through the adoption of a wide range of policies and programmes. Altman et al. (2009) note that such policies should aim at ensuring that the required food consumption level us met and reducing the risk of the poor losing access to food. Therefore, the initial step with regard to ensuring food security is for government to establish an assessment system to establish how secure the government itself, the districts and the regions are food secure. De Klerk et al. (2004) observe that through such an assessment system actions relating to malnutrition and food security in particular are assessed, analysed and evaluated. It is vital that communities are involved in the evaluation and analysis process to ensure success.

There is need to note that the ability to implement policies and monitor their effect is at least as important as the ability to design them (policies). It is therefore important that all activities designed to bring about food security are integrated into a continuous process. This ensures that that initial mistakes in policy conception are corrected, and that adjustments are made as circumstances change. Food security can also be achieved through the country's the general development strategy, such a strategy greatly influences the food security of its households. For example if the strategy is developmental, it will not only support sustainable agriculture, it will also support rapid growth in labour-intensive small industries (Devereux et al. 2008 and Aliber 2009).

On the other hand, household food security can greatly be influenced by macro-economic policy adjustments in a country. Altman et al. (2009) reveal that adjustments in pricing policies, currency values could negatively affect agriculture. Inefficient market interventions and government expenditures too could also depress production and incomes (particularly rural). All these factors reduce the access to food, especially for the poor. While some adjustment measures may be implemented to ensure food security. The Department Of Agriculture (2001) has indicated that in several instances they lead to short-run insecurity especially among the urban poor and net consumers (wage-earners, landless) in rural areas. This is especially the case because such programmes could

lead to increase in food prices, rising unemployment, and reduced budget allocations to social sectors. In this regard Cox, Mak, Jahn, and Mot, (2001) advise that government should be in position to put compensatory measures to cushion the people against the adverse effects of policy adjustment.

Ensuring sustainable agriculture by giving fair prices for farm output and inputs is one other way of ensuring food security. Fair agricultural prices work as an incentive to farmers to produce and sustain the production of agricultural goods. Furthermore government should also be in position to manage and solve problems related to erosion, groundwater depletion, and pollution from fertilizers and pesticides, and problems of pest resurgences. But whilst it is important to give fair prices to the farmers, Baiphethi & Jacobs (2009) caution against artificially high wages. This coupled with improvements in marketing, distribution, and agro-industries, as well as promoting the contribution of the private sector in job creation will no doubt promote food security.

2.5.2 Increase Neighbouring Communities' Access to Food and Individual Families' Farm Income

Enabling access to food by neighbouring households, means that participants in the ME project have to produce more than they needed for their own consumption. This calls for a number of interventions. First, ME participants would require some financial support in form of credit to finance their agricultural activities. With regard to increasing farm income, it would be vital for the ME to diversify their finance generating activities According to Owusu and Abdulai (2009) this can be done by introducing the possibility of increased opportunities for off-farm work in the area. The implication of the foregoing observation is that is that diversification of household activities is a major key to household food security. Owusu and Abdulai (2009) reports for instance that in Malawi, in areas where farms are not large enough for households to be food secure from subsistence farming alone, a number of households access other income generating activities. Such households are indeed more food secure than households that do not diversify. Cash cropping and off-farm work are important income sources for these households. It should, however, be noted that the type of activity which will improve the food situation for most of individual households will depend on household composition and resources (Department of Agriculture 2011).

2.5.3 Creation of Jobs and Ensuring Large Scale Food Production

ME as an agricultural programme also aimed at creating jobs for the local community. Because the project would be mechanized, it was envisaged that individuals from the local communities would be trained in the use of farm machines and implements like tractors. It was also envisaged that where possible the programme would promote other sectors in rural areas through the agricultural backward and forward linkages. The objectives as explained in the foregoing paragraphs were supposed to be realized through encouraging community members to till fallow land and realize economic benefits and preventing agricultural land being converted to other competing land uses. The government was also supposed to provide production inputs in addition to training of community members in tractor operations and production aspects so as to ensure sustainability of the program me.(Masibuyele Emasimini 2011). Whilst Masibuyele Emasimini programme was designed to mainly ensure food security in the community, available literature indicates that there are numerous challenges that are linked to ensuring food security in a country like South Africa. Some of these challenges are explored in the ensuing sections.

2.6 FOOD SECURITY CHALLENGES IN SOUTH AFRICA

There are numerous challenges that impede the achievement of food security in South Africa. The Department of Agriculture (2008) notes that, while some of the challenges are national, others are confined at the household level. National level challenges entail inadequate safety nets and weak disaster management systems. These challenges have implications for vulnerable households, in addition to a range of other household level challenges.

2.6.1 Inadequate Safety Nets

Rural and poor households are not only characterized by few income-earners, and many dependants but are also often primarily dependent on migrant remittances and social security grants. Because they rely on remittances from relatives who may be working in urban areas, the stoppage of such remittances is bound to impact negatively on these households. In areas like New forest where the ME programmes was based, the lack of viable economic activities within the proximity makes matters even worse. In cases where farming could be taking place, like in the case of ME, lack of appropriate farmer support services negatively impacts of the emerging farmers. This observation, coupled with the fact that many poor farming communities in rural areas are solely dependent on government, work against the creation of food secure communities (Kalibwani 2005; Bonti-Ankomah 2001).

At the national level, the challenge is to create the economic conditions that favour poor, food-insecure households. This means instituting changes that actively foster the participation of all in the mainstream economy, and thereby minimizing poor households' dependency on government assistance. In other words, social safety nets should be viewed as a policy of 'last resort', helping those food insecure households that have not benefited from the enabling, pro-poor economic environment that government has supported.

2.6.2 Weak Support Networks and Disaster Management Systems

The success of any agricultural programme like ME, and the eventual eradication of food insecurity rests upon the availability of strong support networks and disaster management systems. This requires crafting and implementing new policies. Policy-makers at all levels of government require considerable information on the conditions of food demand and supply in different parts of the country. This information can be used to identify risky and vulnerable areas, with respect to food access and use. Food security information is multi-sourced and, when using existing data collection systems through established agencies, cooperation and coordination are critical to establishing efficient and cost-effective systems (Aliber 2009; Chazan & Shaw 1988).

De Klerk et al. (2004) note that South Africa has weak institutional support networks with regards to disaster management systems. This means that there is no proper system to deal with food security disasters, such as droughts or floods. These disasters do occur regularly in various parts of the country and consequently threaten food security. Thus since various households do not have enough resources to draw on, they are severely hit by crop failure and asset loss.

2.6.3 Inadequate and Unstable Household Food Production

Hunger and malnutrition in South Africa stem from insufficient, unstable food supplies, at the household or intra-household level. The majority of producers in the former homelands, including where the ME programme is located, are unable to feed their families from their narrow production base. They are deficit producers, and hence, net consumers of purchased food, and rely on non-farm income to meet most of their household needs. Even non-catastrophic events such as seasonal, climatic variation are enough to push many of these households onto the verge of a food crisis. Indeed such catastrophes as enumerated are a major hindrance to the success of programme like ME.

In this regard it would require a lot of government assistance. Apart from aiding programme like the ME, Government assistance is also essential as it acts as a major source of income for the poor rural folk. Without such assistance many areas are bound to experience periodic bouts of hunger.

2.6.4 Lack of Purchasing Power

It is important to note that the majority of households in South Africa lack cash to purchase food. On addition to the lack of purchasing power many rural South Africans have a limited scope of income opportunities, especially in the rural areas. Unemployment rates are high (Stats SA2000) and many black households with the lowest standard of living and are much more vulnerable to poverty, and food insecurity. What the foregoing observation implies is that the success of projects like ME is hindered if the population around them cannot afford to support them financially by buying the agricultural production they offer to the community.

2.6.5 Poor Nutritional Status

According to the UNICEF (2013) one child in four under the age of six years (which translates to approximately 1.5 million children) is stunted due to chronic malnutrition. These figures dramatically highlight the vulnerability of children in South Africa. Food insecurity and malnutrition are highest in provinces with large rural populations such as KwaZulu-Natal, Northern Province, Eastern Cape and the Free State.

Given the contents of the preceding sections, it is vital that South Africa and rural South Africa in particular focuses on initiating program me that could ensure food security among the communities. Thus the need to initiate programs whose purpose is to improve food security cannot be questioned. But if such programmes/projects have to achieve their goals and objectives, there is need for institutional arrangements and interactions to ensure that they are properly implemented. This will be the subject of the ensuing sections.

2.7 INSTITUTIONAL ARRANGEMENTS AND ISSUES OF IMPLEMENTATION OF FOOD SECURITY PROGRAMME

One of the fundamental problems standing in the way of targeting and effective delivery of food security initiatives is the lack of institutional capacity in poor areas. This is particularly the case in rural areas. Such areas lack of representation, training structures, NGOs and assistance from private sectors. Due to lack of such institutions poor people are unable advance their interests and to find out about available resources they could use to ensure food security. This lack of institutional capacity, coupled with insufficient co-ordination further make it difficult for government to channel their interventions towards the neediest, and to monitor the effects of their interventions. According to Coetzee (2003) the presence of such conditions calls for institutional reforms and establishment of special organizational structure to allow initiation of action and appropriate response to address the food insecurity plight.

From the above it is evident that the success of a food Programme like ME requires the availability of institutional structures. According to the Department of Agriculture (2001) government is required to increase its support and improve coordination of the national, provincial and local governments to ensure the success of the food programmes. Apart from the above noted measure, the following measures could also be taken:

- Strengthen existing decentralized planning systems by backing them up with resources and technical support.
- Enabling co-ordination among political and administrative structures.
- Fostering co-operation among government, parastatals, private sector and NGO's.
- Enabling co-ordination among Departments at national and provincial levels.

The following are also measures that could be employed to ensure success of food security programme:

- Develop the residents of the community to monitor and respond to food insecurity.
- Encourage local residents to support all food initiatives in the community.
- Investigate alternative organizational arrangements to enable production and distribution of food.
- Set up units to deal with household food security dynamics at community level.

2.8 EXTENSION SUPPORT AND THE MASIBUYELE EMASIMINI PROGRAMME

Extension support is crucial to established farmers and emerging farmers. It can mean the difference between success and failure. Extension support is often supplied by government departmental over the world with the aim of transferring skills and knowledge to local people. Agricultural extension was used by colonisers to transfer skills and knowledge to local people especially for the production of export goods to the benefit of the colonising mother country. Decades after the liberation of countries extension support still plays a vital role in the production of goods. Although colonisation has stopped, the practice of extension continues (Axinn 1988).

The South African government, like most governments, envisions that extension support will increase the production of farmers causing a ripple effect that will improve the socioeconomic status of farming communities. In Africa, where the majority of people depend on farming for survival, governments tend to put more emphasis on agriculture where extension support is a key factor (Axinn 1988).

Extension approaches are often decided upon from a national level and tripled down to local level. The main aims and functions of extension services are deliberated often with the involvement and consultation of numerous stake holders such as academics and politicians. However despite gains in participatory governance there is very little consultation of local farmers on what they would want from extension services. Rather the national view is largely that Extension Officers have skills and knowledge on current developments of farming that they can transfer to farmers (Axinn 1988).

Since the focus is often on increasing production extension services are often focused on issues involving the production of crops. Issues such as seed variety, planting depth and spacing, fertilizer types are central to extension services. In summary, farmers are often supported with technical skills and crop management skills (Axinn 1988).

Extension services are carried out by formally employed officers assigned to specific predetermined demarcated localities such as municipalities which are further split into working areas per official. Officials use various mediums to educate farmers. One such measure is the demonstration plot which is exactly as the name implies; a plot where Extension Officers demonstrate scientifically “proper” way of farming. These plots are often amongst communal farming areas however demonstration events can be held to demonstrate a specific skill to farmers (Axinn 1988).

Extension Officers embark on farmer visitation where farmers at all stages are assisted according to their need; this is however still within the top down predetermined functions and objectives of government. This kind of approach has had numerous benefits for local farmers especially in rural areas who lack knowledge on new technologies and products that often give an advantage to more established farmers. Without the intervention of Extension Officers knowledge and skills would be focused in the hands of the few privileged farmers thus trapping and prevention upward mobility of farmers (Axinn 1988).On the other hand this kind of extension approach has been criticised for driving a government agenda thus not truly catering for the needs of farmers (Axinn 1988).

The Masibuyele Emasimini programme (2011) states that farmers or beneficiaries will also be supported with technical advice from extension officers. The central role extension has to play is equipping these beneficiaries with skills to effectively exploit the inputs provided to them by government. This study questions if such provision of skills has occurred and to what level; secondly, if everything continues as is with the programme, will it be sustainable?

2.9 INDICATORS AND MEASURES OF INPUT SUBSIDIES

The impact of food security programmes has received the attention of researchers throughout the world. Driven by one goal, the need to establish if current mechanisms put in place to address growing global hunger are successful or not. Furthermore to identify those aspects that hinder the success (Fasoyiro & Taiwo 2012).For any government, the need to ensure food security of their people is central; governments have implemented different programmes throughout the world to address food (Fasoyiro & Taiwo 2012). Food security subsidies can have significant impact on a countries food security but they can also be idle and drain huge sums of capital, without considerably improving the socio economic status of its residents. The high costs of funding and sustaining a food security subsidy programme needs to be accompanied by strong gains in the economic performance of the agricultural sector, along with social mobility of farmers in order for it to be sustainable (Shively, Ricker and Gilbert 2013).

Input subsidies have seen countries such as Malawi produce and sell in the global markets as noteworthy competitors; moreover, agriculture has an impact on a large number of the population in

developing countries that its development implies the upliftment of the greater majority (Shively, Ricker and Gilbert 2013).

Impact evaluation has been defined by the World Bank as the assessment of the changes of wellbeing of whatever variable the programme was aimed at e.g. individual or household. The central question impact evaluation seeks to answer is; what would have happened if the programme was not implemented to the people it has been implemented upon?
The aim of impact evaluation is to provide feedback improve the design of policies, provide increased accountability and allow learning (Gertler, Martinez, Premand, Rawlings and Vermeersch 2011).

Malawi is an example of successful subsidy, at least in terms of yield; the subsidisation of inputs led to the major increase in the production of the country ensuring food security and increasing trade; thus strengthening their economy. The fact that the subsidy was focused on smallholders is an immense achievement, however even with the much acclaimed success the sustainability of firstly, the subsidy programme, secondly, the sustainability of its impact is questionable. What will happen if the subsidy is withdrawn (Shively et al. 2013)? This question is central to any subsidy programme such as the Masibuyele Emasimini programme.

The impact of subsidy programmes is twofold and should be accessed in terms of the short-term impacts which paint a picture of the long-term sustainability (Gertler et al. 2011).

The Masibuyele Emasimini programme is a very ambitious programme that aims at addressing food insecurity, unemployment and low production (Masibuyele Emasimini 2011). To evaluate the impact of a programme, one needs to look at what the programme aimed to achieve and its objectives. These aspects act as the benchmark on which assessment should be based. Furthermore, the difference between pre and post production shows the impact the programme has had. Taking pre implementation as a starting point it is easy to deduce what changes occurred. The change due to implementation of the programme equates to impact of the programme. Impact is always tested in the positive however impact can be positive or negative (Gertler et al. 2011). The impact of the Masibuyele Emasimini programme can be determined from a number of inter-linked aspects which

require both quantitative and qualitative forms of analysis to adequately capture the true impact the subsidy.

2.9.1 Improved Yield

Food agriculture input subsidies are aimed at improving the quality and quantity of yield, by subsidising the farmers with fertilizers, seeds and mechanisation. The Masibuyele Emasimini programme also aims to do so. As stated the envisioned outcome of input subsidies is increased yield along with its economic and social spinoffs. The rationale behind subsidising farmers has been discussed in various sections throughout this literature review; however at the core of all envisioned impacts of the subsidies is the issue of yield. An improvement in yield is a prerequisite for the remainder off the advantages to be realised. Input subsidies seek to reduce or in this case, eliminate the cost of production, thus capacitating farmers to do more by eliminating financial constraints. The case of Malawi showed that input subsidies can have tremendous outputs Malawi's maize production more than doubled its national yield after the introduction of fertilizer subsidy.

2.9.2 Skills Training and Skills Transfer

The programme policy documents clearly indicate the provision of training and skills by extension support agents as one of its objectives. Secondly it clearly aims at creating self-sustaining independent farmers; the indication of time periods of benefits bears evidence to that (Masibuyele Emasimini 2011). The level of skills and training received influence the quantity and quality of produce; secondly the sustainability of the programmes objective is depended on the capacity of small holders to continue farming at a level equal or greater than when they were benefiting from the subsidy.

2.9.3 Income Generation

A surplus without the ability to sell the produce is unfruitful and leads to wasteful expenditure. Generating an income is a natural indicator of a farmer moving from subsistence to small holder towards commercialisation. It goes without saying that even if the quantity and quality of the produce could improve substantially; farmers still need to sell at a profit to qualify their farming as a business. The issue of income generation then touches upon various factors that influence the ability to sell, such as access to markets, contact with markets, marketing and so on.

2.9.4 Job Creation

The impact of input subsidies should expand to beyond the individual farmer towards creating employment opportunities for people in that community giving the community access to food. Access is synonymous purchasing power; therefore the creation of jobs is crucial to the social uplifting of community members and achieving sustainable food security.

2.10 MEASURING IMPACT

The study will analyse the above mentioned indicators in evaluating the impact of the Masibuyele Emasimini programme. Moreover the programmes objectives will act as the background on which assessment will be based. Food security/ insecurity have various factors that come into play; they inform and influence the security status of households. Therefore various issues will be accessed throughout this study cumulating towards accessing their impact and drawing conclusions about the sustainability of the programme.

It is of importance to note that food security/ insecurity as well as the issue of hunger are well debated topics and for decades no one accepted means of measurement has occurred. Various researchers have used different methods to measure, analyse and quantify food security, however, no one measure is without critique (Migotto, Davis, Carletto and Beegle 2005). The arguments around the use of qualitative and quantitative forms of measurement have found their way in the concept of food security. Migotto et al. (2005) state that there recent turn is towards using both methods to complement each other. This move stems from the realisation that no one indicator can adequately capture is issue of food security.

Traditional measurements and indicators of food security often focused on specific measurable components such as calorie intake and food supply. These kinds of indicators fail to capture the complexity of food security (Migotto et al. 2005). Arrays of indicators have since been established to measure food security/insecurity. Migotto et al. (2005) mention five common indicators namely “undernourishment;” these form of studies focus on the dietary food supply per capita. The second group of indicators focus on the “food intake;” these indicators measure the food intake at individual or house hold level; due to their capital intensiveness such studies are very rare. The third group “nutritional status” where anthropometric measures, are taken of individuals the problem with this form of indicator is that it does not differentiate between other factors that can affect the nutritional

status of individuals e.g. diseases. The forth indicator is "access." The access to food has been used by many countries as a measure of food security and hunger. Studies of access usually look at wealth and income as indicators. The last is the issue of "vulnerability." It is a measure of current and future probability of food insecurity.

2.10.1 Self-Assessment Indicators

These forms of indicators and measurements are widely used by countries and agencies alike to gather information on food security. Both developed and developing countries have been using self-assessment indicators. The widest form of data collection instrument in this type of indicator is the household survey (Migotto et al. 2005).This type of approach to assessing household food security has been applied and tested in various countries such as the United States, Brazil, Yemen and Bangladesh. This type of indicator relies on a person to report or indicate their status. Various questions designed to assess if the respondent is food secure are employed (Migotto et al. 2005).

2.11 FOOD SECURITY

Three aspects of food security arise from the literature: firstly, food security concerns the issue of availability of food. This issue touches upon the issue of production. Someone somewhere must produce enough food; this food has to be nutritionally adequate to ensure a healthy and active life for households (FAO 2007). The second aspect is access. So the food is produced but, can households access it? This touches upon the issue of cost, what will it take for the household to get the food, does the household have it? The issue of access cuts across and is influenced by the socio economic status of household. Lastly; the reliability of the food produced to provide adequate nutrients to consumers (FAO 2007).

2.11.1 Food security in the New Forest Context

Taking the above definition of food security and applying it to the study area, a few key aspects/indicators arise. Using deductive methods a food secure household would be one that is able to produce right amount of food to feed that household. Secondly, they need to be able to produce at an acceptable quality to ensure that their nutrition is not compromised, the house hold needs to have a surplus in order to access other foods produced elsewhere.

Therefore, food security is understood and interpreted to respondents as the ability of their households to on a daily basis meet their dietary needs to ensure a healthy and active life style by acquiring food in socially accepted ways. This means that beneficiaries are able to at least provide three meals for their families. Secondly they are able to produce a surplus yield that allows them to daily meet their nutritional requirements. Therefore, food security is measured in this study by the following determinants: yield, farm income and crop management.

2.12. CONCLUSION

This chapter provides a conceptual framework against which respondents' opinions regarding the success and the challenges of the Masibuyele Emasimini program are judged. The chapter explored the concept food security and its costs before examining the general food security / insecurity situation in South Africa. Household food security trends in South Africa were examined before focusing on the indicators and determinants of rural house food security. Food security as it exists in the country was examined , showing that while the urban South Africans are food secure, those in rural areas face the problem of food insecurity on a daily basis. The focus of the chapter then shifted to the historical origins of food insecurity in South Africa, before exploring the role of the ME programme. Food security challenges were identified and interventions were suggested.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

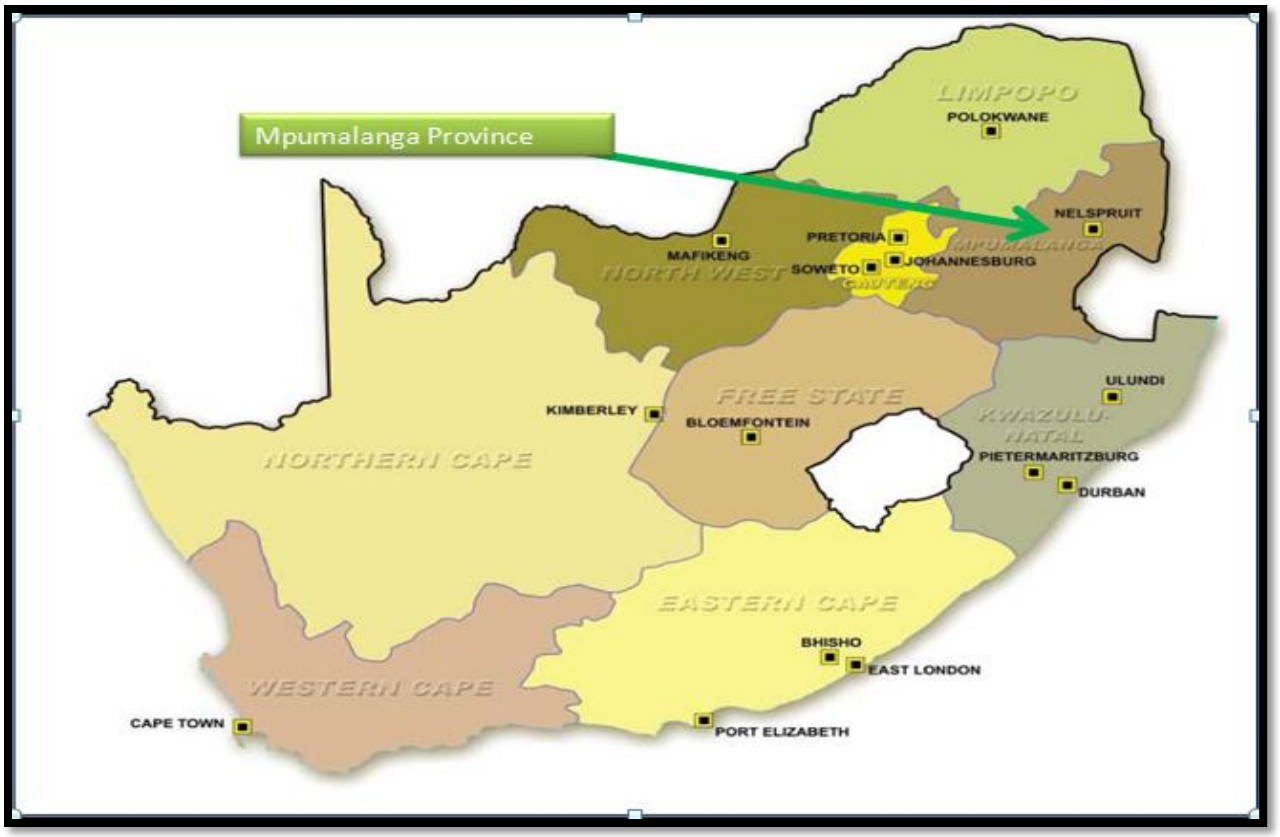
The chapter outlines the methodology adopted to investigate the aim and objectives of this study. It begins by introducing the study area and highlights its national context as well as the areas municipal context by the use of maps furthermore a brief overview of the characteristics of the broader study are is presented followed by a brief history on the new forest irrigation scheme. The second aspect discussed in this chapter is the research design followed in this study it is described as a descriptive mixed method approach to research. The chapter goes on to detail sampling methods used to select respondents. Simple random sampling was used to select participants from the population which consists of the entire irrigation scheme. Moreover the selection of key informants in the study is discussed where members of the irrigation scheme as well as extension officers were selected. Furthermore it describes the data collection instruments used and concludes by detailing the forms of data analysis used to analyse data.

3.2 STUDY AREA

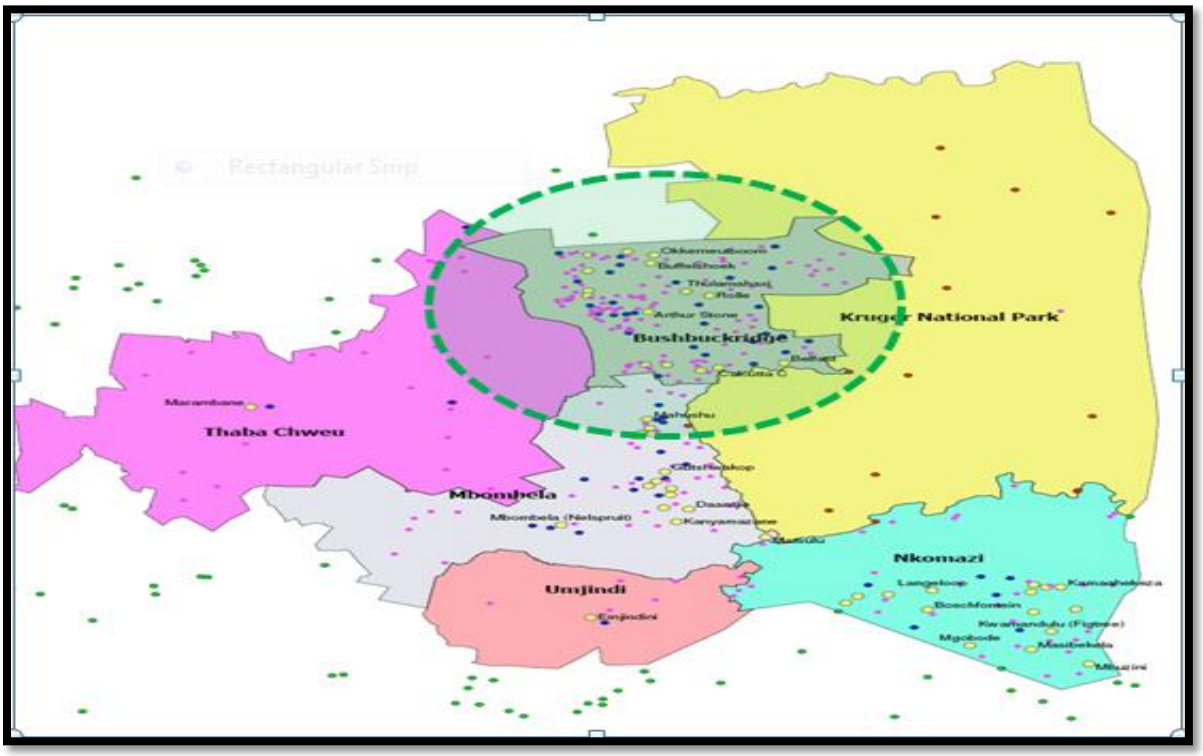
The Mpumalanga Province covers 6.5% of the total area in South Africa and it is the second smallest province after Gauteng Province. About 19% of the land cover is arable that is suitable for agricultural production practices. The provincial human population was estimated at 3.6 million in 2007 as per Stats-SA Community Survey (2008). The Mpumalanga Provincial Growth and Development Strategy (PGDS 2007) indicates that 2 708 360 people live under the minimum Living level. About 43.2% of the economically active population in the province is unemployed. The unemployment problem has escalated due to the impact of the recession on the country: however agriculture is the main contributor to job creation in the province (Masibuyele Emasimini 2009).

The study was conducted in the Bushbuckridge Local Municipality at New Forest Irrigation Scheme. The Kruger National Park provides Bushbuckridge with its eastern boundary, and the Limpopo Province borders on the northern edge. The majority of people in the area are mainly Shangaan speaking, with the North Sotho speakers being in the minority, and a small minority

being the Swati people. The Bushbuckridge Municipality has a population of about 517, 807, with an arable land of 25586.76 hectares (see Maps 1 & 2).



Map 1: Republic of South Africa showing the different provinces with Mpumalanga Province highlighted. ***Source: Millennium Development Goals, 2010 page.*** *6*



Map: 2 Ehlanzeni district municipalities, with the Bushbuckridge Local Municipality highlighted. ***Source: Bushbuckridge Local Municipality GIS unit***

3.3 RESEARCH DESIGN

A research design is the process that followed by a researcher or researchers in conducting the study, it is the action plan from start to finish (Marvasti 2004). According to Marvasti (2004) research design is defined as the framework that specifies the type of information that will be collected, the sources of the data, and the data collection procedures.

The study is designed as descriptive research. Descriptive research is a research that is conducted without any manipulation of reality defining what descriptive research is, can be tricky but what is clear is that descriptive research aims at describing what is occurring as is and does not seek to control other aspects in order to achieve results, thus descriptive research is not experimental. This type of research is often used to describe associations and relationships between things, usually conducted before experimental research in order to inform which relationships to further study. This study used a descriptive survey to collect data from beneficiaries and unstructured interview from the extension officers. The data collected were used to describe the characteristics of the beneficiaries of ME, skills training received, extent to which government expectations are met, constraints and the extent to which were addressed.

3.4 SAMPLING

3.4.1 Population of the study

New Forest irrigation scheme, was established in 1964 by Gazankullu Government for the four villages, i.e., New Forest A, Tsuvulani, Orinoco C and Edinburgh A. Each household was initially allocated 1,3ha for crop production. The scheme's irrigation water is supplied from the Mutlumuvi River. It has 1100, 7ha with 804 farmers; seven balancing dams and one main dam, with a 27, 5 km canal running through it. The main produce in the scheme is cabbages, spinach, tomatoes, green pepper chillies, maize, groundnuts, cassava and mangos.

3.4.2 Probability Sampling

The households were selected randomly using simple random sampling; which refers to the drawing of sample from a list of the elements in the population, whereby each element has an equal chance to be included in the sample (Marvasti 2004). Stratified sampling was used as New Forest Irrigation Scheme is divided into groups, i.e., New forest A, Tsuvulani, Orinoco C, Edinburgh A. A sample of 120 from the whole population of beneficiaries (804) was used in this study, because of limited time and resources which make it difficult to collect the data from all beneficiaries. Furthermore, the beneficiaries were divided into homogenous groups to give chance to participants equally (refer to Table 1).

Table 1: Sampling Framework per Village

Name of village	Population	Percentage%	Sample
Orinoco C	141	17.5	21
Edinburgh	122	15	18
New Forest	235	29.2	35
Tsuvulani	306	38.3	46
Total	804	100	120

Table 2: Gender of the Respondents

Name of village	Population	Male	Male sample	Percentage %	Female	Female sample	Percentage %
Orinoco C	141	85	13	19.7	56	8	14.8
Edinburgh	122	63	9	13.6	59	9	16.7
New Forest	235	132	20	30.3	103	15	27,8
Tsuvulani	306	159	24	36.4	147	22	40.7
Total	804	439	66	100	365	54	100

Table 2, shows the samples according to gender per village to get a clearer view of the gender distribution of the sample.

The total numbers of beneficiaries vary from village to village depending on how many farmers benefited.

3.4.2 Selection of key informants

Groenewald (2004) indicates that the selection of key informants in research are selected based on the researcher's purpose and the value they might add to the study. In this case, specific individuals those have been with Masibuyele Emasimini for a long time; or in the case of Extension Advisors, those have been implementing the program for an extensive period; have been chosen to gain an in-depth understanding on the program through their eyes. The use of qualitative unstructured interviews was used to enrich the results of the study, to ascribe meaning and feeling to the quantities produced by quantitative data.

This form of sampling was used to select Extension Advisors and farmers. After the conduction of this sampling method seven Extension Advisors and five farmers were selected and unstructured interviews were used to collect data. The rationale for selecting five of the beneficiaries for unstructured interviews was to gain in-depth understanding of the aggregate responses of beneficiaries where a questionnaire was administered.

3.5 DATA COLLECTION (INSTRUMENTATION PROCESS)

3.5.1 Survey Questionnaires

The instruments used are; semi structured questionnaire and unstructured interview. This study relied mainly on primary data in the form of unstructured interviews, observations and questionnaires, which were collected in a survey of households of the beneficiaries. A questionnaire focusing on farmer's socio-economic profile; farmer's agronomic practices; and farmer's markets was administered to individual beneficiaries to provide comprehensive understanding of the trends, indicators and determinants of food security and the nature of smallholder agriculture food production as practised to provide for food security.

Triangulation of data collection and analysis methods was used to ensure reliability and validity of the research.

i. Questionnaire

To answer the questions, one questionnaire was compiled for beneficiaries of Masibuyele Emasimini at New forest irrigation Scheme. The questions were constructed in English, and explained in the respondent's mother tongue, for those who do not understand English. The researcher gave the questionnaire to each responded in person. This ensured that respondents were able to seek clarity of questions; secondly it afforded them the opportunities to give diversity of opinions.

The questionnaire for the beneficiaries of Masibuyele Emasimini is divided into eight sections as follows:

Section A. Consists of questions on socio-economic factors with nominal and ordinal measures i.e. age, gender, farming experience, size of household, level of qualification and occupation.

Section B. Consists of nominal, ordinal and open-ended questions on inception of the programme, i.e., If they know of Masibuyele Emasimini, where did they hear from, for how long have they been beneficiaries, who nominated them to be beneficiaries, the type of assisted, the frequency of assistance and number of hectares assisted.

Section C. Consists of nominal measure as well as; 5 Likert type scale questions on skills training, i.e., technical, marketing, financial and crop management (5.strongly agree=SA, 4Agree=A, 3.Uncertain=U, 2.Disagree=D, 1. Strongly Disagree).

Section D. Consists of nominal and 5 Likert type scale questions on government expectations (5.strongly agree=SA, 4Agree=A, 3.Uncertain=U, 2.Disagree=D, 1. Strongly Disagree).

Section E, consists of nominal and 5 Likert type scale questions on challenges of Masibuyele Emasimini programme (5.strongly agree=SA, 4Agree=A, 3.Uncertain=U, 2.Disagree=D, 1. Strongly Disagree).

Section F, consists of ordinal measures and scale type of questions on impact of Masibuyele Emasimini to beneficiaries, rating systems (1= Very good, 2= Good, 3=

Poor, 4= Very Poor, 5= Other),(1=very happy, 2=happy, 3=fair, 4=unhappy,5=very unhappy), (1=high yield, 2=average yield, 3=low yield,4=no yield,5=other).

Section G, consists of nominal measures and open ended questions on recommendations.

Section H, consists of Likert scale type only on support from Extension Officers with 5 rating systems of (5=very great extent, 4=great extent, 3=average extent, 2=some extent, 1=limited extent), (5=very good, 4=good, 3=uncertain, 2=fair, 1=poor), (5=very often, 4=often, 3=seldom, 2=sometimes, 1=none) and (5.strongly agree=SA, 4Agree=A, 3.Uncertain=U, 2.Disagree=D, 1. Strongly Disagree).

3.5.2 Pilot Testing

According to Leedy (1970, p.400) after drafts of the interview's schedule and other instruments are completed, they are pretested on a small scale representative sample of the universe. The questionnaire were piloted on a small scale sample in order to allow the researcher to test if the questions are well structured and interpreted in the field; in order to ensure that the questionnaire is clear and collects accurate data. Piloting allows for amendments and irregularities in the structuring of questions to be identified and rectified before the actual data collection process (Bulmer and Warwick 2000). The questionnaire for beneficiaries was pretested at Digleydale irrigation scheme which is next to New forest. Respondents were randomly selected, i.e., 18 beneficiaries from the scheme. It took almost 30-50 minutes for an individual to complete the questionnaire.

Pilot testing strengthens the reliability and validity of the study by ensuring that the questionnaire portrays the message it was intended to and collects the data it was supposed to.

The use of multiple methods of data collection known and triangulation used in this study allows for more reliable and valid data to be attained. By viewing data from different angles a true reflection can be better achieved Leedy (1970).

3.5.3 Interviews

Interviews with both the selected beneficiaries that participate in the programme and Extension Officers were used to collect qualitative data. Five beneficiaries and seven Extension Officers were interviewed. The interviews consisted of a few unstructured questions and were then followed up by probes. The interviews followed a conversational or discursive style (Henning, Van Rensburg and Smit 2004). The interviews were arranged at the participants' convenience

and each interview lasted for approximately 60 minutes. Every interview was recorded and transcribed verbatim for analysis. In the event of ambiguity and vagueness of any participant's statements, clarity was sought through further probing questions (Krueger 1998).

3.5.4 Observations

Farmer's fields were also visited to identify visible production indicators. Observations allowed the researcher to acquire primary data in the form of visual evidence. During observations, the researcher could see first-hand some of the more physical aspects of this study such as technical skills. This acts as a validation of how reliable beneficiaries responses were, secondly it furnished the study with valuable data (which is summarised in section 4.17).

3.6. DATA ANALYSIS

3.6.1 Qualitative Data Analysis

The researcher organised and re-arranged the data following every interview. In line with the dictates of a phenomenological inquiry, each audio-recorded interview was transcribed and labelled as soon as it is finished. The data were then subjected to coding; a process, through which data was compiled, labelled, separated and organized in tentative themes/categories and sub-categories (Charmaz 2002; Belawati & Zuhairi 2007; Hopkin & Lee 2001) that are relevant to the research questions.

Coding was done in three stages; namely open, axial, and selective coding (Strauss & Corbin 1998).Open coding is the part of analysis concerned with identifying, naming, categorizing and describing phenomena found in the text. During open coding, the transcripts were read line by line. The aim of this stage was to identify phrases and words (units of meaning) that carry similar meanings. These were then grouped together in provisional categories (Holliday 2007; Belawati & Zuhairi 2007; Hopkin & Lee 2001).Axial coding is the process of relating codes (categories and properties) to each other, via a combination of inductive and deductive thinking (Glaser & Strauss 1967). Selective coding is the process of choosing one category to be the core category, and relating all other categories to the category.

3.6.2 Quantitative Data Analysis

Descriptive statistics was used to analyse the data. The study utilised the statistical software named SPSS and the use of Microsoft Excel to analyse the quantitative data. Frequencies, percentages, means, graphs and photos were used to organise and summarise the data collected. Due to the nature of the data, a three-stage coding process was utilised to analyse the data received from participants. From these themes numeric codes was ascribed in order to graphically represent the data and compare it with other data numerically.

To describe the beneficiaries in terms of technical skills acquired, the percentages, graphs and mean values were used to summarise the responses. To describe the beneficiaries in terms of crop management skills they have, percentages, graphs and mean values were used to summarise the responses of beneficiaries. The five point Likert scale ranged from 1 to 5. The results here were based on the mean value of less than or equal to 2.5 reflected 'disagree or limited extent'. A mean value of that was greater or equal to 2,5 and less than 3.4 reflected undecided or average extent" and a mean value of greater or equal to 3.4 reflected agree or great extent.

Regression analysis was performed on the socio economic status and how they affect the food security of households.

Correlation coefficient was used to determine the relationship between the beneficiaries' level of education and government expectations met. Correlation coefficient was also used to determine the relationship between skills training and government expectation met. Correlation coefficient is a statistical measure of the degree to which changes to the value of one variance predict change to the value of other. A coefficient of +1 indicates a perfect positive correlation. A change in the value of one variable will predict the change in the same direction in the second variable. A coefficient of -1 indicates a perfect negative correlation. A change in the value of one variable predicts a change in the opposite direction. A coefficient of zero indicates that there is no discernible relationship between fluctuations of the variables.

The nature of the data collection methods used to collect the data lends its self to both qualitative and quantitative forms of analysis. The literature study that was conducted was used as a framework which informs the data collected as well as the analysis.

i. Measuring Food Security

Respondents were given a food security definition interpreted to them in their preferred languages, and asked to rate their food security in terms of a five level likert scale. Their responses were recorded and analysed on the base of the following assumptions; firstly, food secured households or people do not doubt their status; secondly, people are more able to state if they are hungry or not; lastly, food security is a continuous process that involves both the physical and emotional aspects and cannot ever be truly measured using empirical standards. Individuals can however; package the bulk of experiences enough to adequately classify themselves. This self-assessment was used as the first indicators of food security.

Five indicators were identified by the researcher. The first four are farmer and locality specific influencers of food security while, the fifth is concerned with the experienced physical and psychological aspects of food security. The first farmer specific indicators are; farmer income, farm yield, crop management skills and technical skills of the farmer. The fifth is a self-assessment indicator by beneficiaries (see 4.9.4). In line with the definition of food security provided in this study, these indicators address the keys aspects of food security which are food availability, food access and food adequacy. They are however specific to farming households and only factors pertaining to crop farmers because that is the focus of this study.

Under each indicator there are numerous factors or indicators that determined it.

Indicators such as crop management which had four components (Figure 1), an average per responded on each variable was calculated, in order to get an average value of crop management. The same procedure was followed with technical skills. From these the averages of the two indicators crop management and skills training) along with the results of the other two indicators (farm income and farm yield) were computed into and an average value per respondents. From these averages a cut-off value was determined which translates to a mean of 3.

The Figure 1 below graphically illustrates the relationship of the indicators to food security.

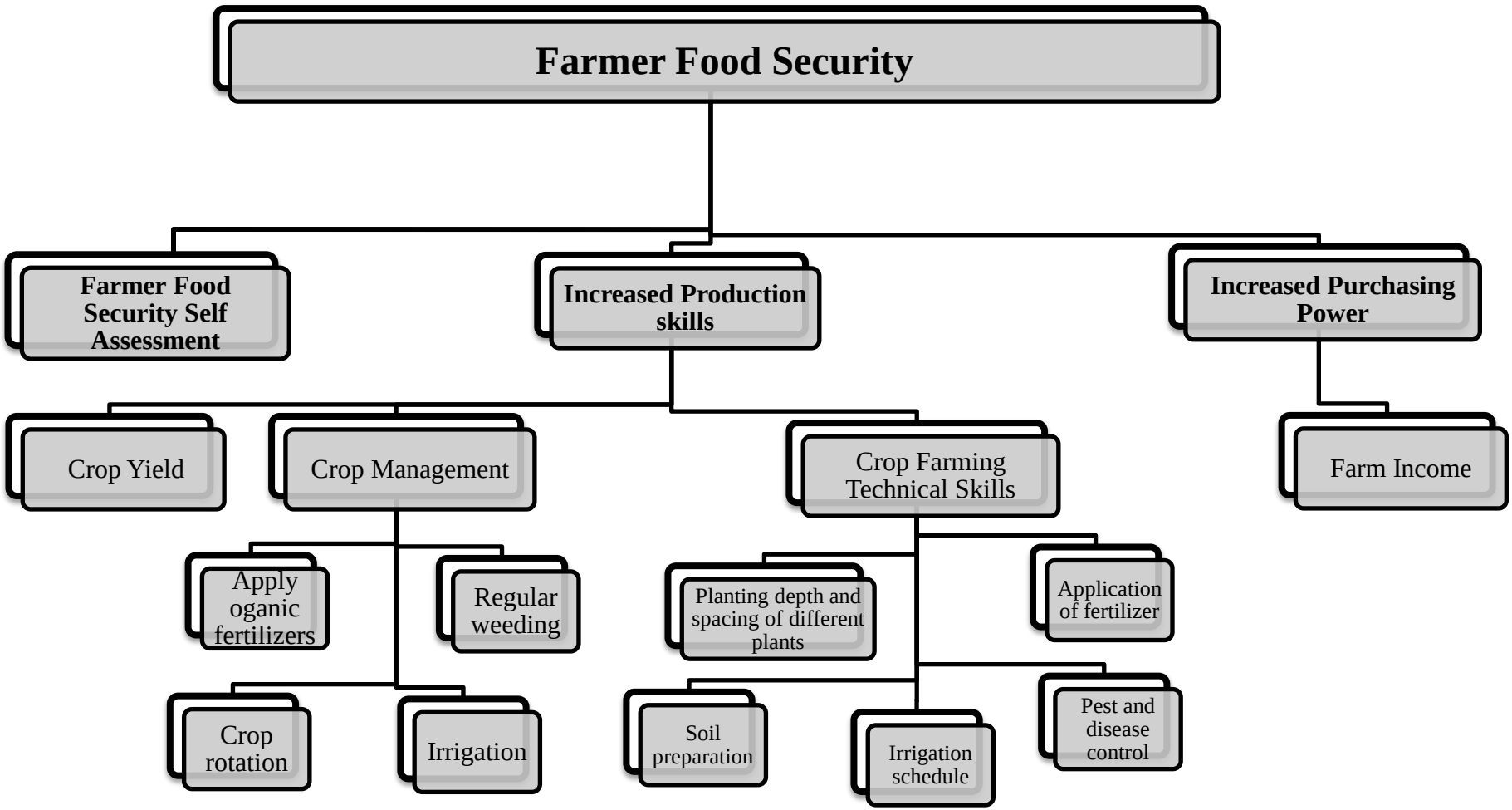


Figure 1: Schematic illustration of the determinants of subsistence farmer food security

ii. Logistic regression model

This study used the logistic regression model to analyse data; with an aim of answering the question; what are the major socio-economic that affect household food security in the study area?

The data collected from the irrigation scheme was analysed using the Statistical Package for Social Science (SPSS) and Microsoft excel; where the general linear model was used. Logistic regression was used to predict dependent variables on the basis of nine independent variables and to determine the percent of variance in the dependent variable explained by the independent, to rank the relative importance of independents, to assess interaction effects and to understand the impact of the independent variables on the dependent. Logistic regression estimates the probability of a certain event occurring.

General linear model

$Y = a_0 + bx_1 + bx_2 + bx_3 + U_i$ .....(1)

Where: Y= Dependent variable

a_0 = intercepts (how the independent variables affect the dependent variables)

b = Estimated parameters

U_i = error term,

Specific linear model

$FOODSEC = a_0 + Bx_1\ GENDER + Bx_2 AGE + Bx_3 FARMINCOME + Bx_4\ LANDUSE + Bx_5\ HHSIZE + B_{X6}\ EDU + B_{X7}\ FARMEXP + B_{X8}\ YIELD + B_{X9}\ LANDSIZ + U_i$

Food security is the dependent variable which is measured as a dummy (food secure) variable (FOODSEC). There are several independent variables (listed and explained below) on which success of project depends on to increase food security.

Farm income

Farm income was measured as a ratio interval. An increase in farm income is envisioned to have a positive influence on food security as more money increases the buying power of household giving them increased access to foods**.** Farm income derived from selling produce is also a measure of the success of a farm as a business. The greater the income the more developed the farm tends to be, secondly the greater the access to food, production inputs, education and health

care. The hypothesis here is that an increase in farm income will have a positive effect on food security.

Age

The farmer's age was measured by the chronological age. The age of respondents has a two fold effect; the younger the farmers the more likely they are to embrace new farming methods; they also have the physical ability to do manual work compared to their seniors. However older farmers have more experience and knowledge in farming especially in their farms. They have developed coping strategies over the years which allow them to manage their crops more efficiently. It is hypothesized that older farmers (greater than 40 years) are more likely to be food secured.

Gender

Gender was measured as a dummy variable 1=male 0=female. The agricultural spinoffs of food security have been noted to increase by as much as 20% when women are given the same production inputs and opportunities as men (FOA 2011). Women have shown that when educated and equipped, they have the ability to champion change much more noticeable than their male counterparts (Mwaniki u.d). Therefore, gender is believed to have a positive influence on food security with the gender of choice being females.

Household size

Household size was measured by the number of people residing in a household. Small holder farming is dependent on labour as hiring people is expensive to most of these farmers and the profits they make are in adequate to cater for paid labour. Families with more active members pupils who have surpasses basic education schooling age which is usually around 17 years above would then be at an advantage when it comes to labour but would also have more mouths to feed (Manona 2005). More family members of active age (above 17 years)are hypothesized to have a positive effect on food security.

Level of education

Abebaw (2003) stated that the education level of people has an impacton their food security. The more educated individuals are the more likely they are to be food secured.In this model, the level

of education is measured by the highest grade obtained which are then classified into four groups, i.e., never attended school attended primary school, secondary and tertiary. Food security is hypothesized to increase as the level of education increases; a high school education and above will contribute positively to food security.

Farming experience

Smallholder farmers are said to have an enormous database of local and practical knowledge on issues contributing to successful farming in their localities they also hold collective experience in farming in their localities (UNEP & IFAD 2013). It is hypothesised that the more experience (10 years above) farmers are, the better production can be expected. Farming experience is measured in number of years one has been farming. Farming experience of 10 or more years has been hypothesised to have a positive impact on the farming skills of farmers, thus increasing the likelihood of successful production.

Land use

The continuous use of land by irrigating is the sole aim of an irrigation scheme. The advantage of irrigation is that one can farm throughout the year thus the land use is crucial if irrigation farmers are to be sustainable. It is hypothesised that the more diverse the crops planted and intensified in terms of space usage; the greater the probability of food security. Therefore land use will have a positive effect on food security. Thus use of the land for more than one season is hypothesised to have a positive impact on food security.

Land size

Najafi (2003) states that farm size is a positive contributor to food security of subsistence farmers, the more land they have the more they can cultivate. Ayalew (2003) emphasizes the relationship between farm size and crop production the larger the cultivated area the bigger the produce which increases food availability. The hypothesized assumption is that increases in cultivated land size for this model a land size greater than 1ha will have a positive influence on the food security of farming households.

3.6.3 Interpretative Techniques

The analysis was based on perception of the beneficiaries of the Masibuyele Emasimini programme in the new forest irrigation scheme. This means that the researcher analysed the data and organised it in a quantitative form in order to allow for qualitative interpretation. A qualitative technique of data analysis was used for unstructured interviews; systematic coding into themes. Table 3, below summarises the different methods of analysis used to analyse data that was derived from different instruments of data collection.

Table 3: Summary of Data Analysis

Specific research objectives	**Instrument of data collection**	**Sources of data**	**Method of analysis**
Determine the socio-economic factors affecting the household's food security in the study area	Questionnaire	Beneficiaries	Graphs and tables of frequencies and percentages with qualitative interpretative analysis of findings, regression analysis were also used. A logistic regression analysis
Determine the extent to which government expectations related to Masibuyele Emasimini programme were met	Un structured interviews or Extension Advisors and questionnaire for beneficiaries	Beneficiaries	Graphs and tables of frequencies an percentages with qualitative interpretative analysis of findings
Identify constraints of Masibuyele Emasimini programme as perceived by Extension Officers and beneficiaries	Unstructured interviews or Extension Advisors and five of the beneficiaries questionnaire for beneficiaries	Beneficiaries and Extension Advisors	Graphs and tables of frequencies an percentages with qualitative interpretative analysis of findings
Determine whether the beneficiaries were equipped with the necessary skills required for sustaining the projects	unstructured interviews or Extension Advisors and five of the beneficiaries questionnaire for beneficiaries	Beneficiaries and Extension Advisors	Graphs and tables of frequencies , percentages and mean were used with qualitative interpretative analysis of findings
Evaluate the impact of Masibuyele Emasimini program in households of Bushbuckridge municipality areas	Unstructured interviews or Extension Advisors and five of the	Beneficiaries and Extension Advisors	Graphs and tables of frequencies an percentages with qualitative interpretative analysis of findings

	beneficiaries questionnaire for beneficiaries		
Determine the relationship between the level of education and government expectations	Questionnaire	Beneficiaries	Correlation analysis
Determine the relationship between skills training and government expectation	Questionnaire	Beneficiaries	Correlation analysis

3.7 ETHICAL CONSIDERATIONS

The study used the written and verbal communication, which could involve emotions, to interact with different rural households, smallholder farmers and other relevant stakeholders. As such, the questions asked were intended not to harm, discriminate and invade privacy of any participant(s). All participants were not forced to provide information against their will and according to their race, colour and language.

Hence the participants were allowed to provide information freely and on voluntarily basis. The study ensured and guaranteed that the participants' identities were not revealed, hence guaranteeing anonymity. At the centre of the ethics, study ensured that all the necessary permissions and procedures from all respondents to conduct the study were obtained, secondly their traditions and beliefs were well respected.

The following permission and procedures were attained:

- Voluntary participation- participants were not forced to partake in the study and their right to leave the study was related to them.
- Informed consent- the studies participants consented to being part of the study. They were informed of the goal, use and consequences of the study.
- Confidentiality- the confidentiality of participants was insured by the researcher at all times, who refrained from using names within the study. Where use of ones particulars which could lead to identification and thus limit confidentiality consent was sort prior to use.
- Potential to harm- the study had very little potential for harm. However the researcher did address concerns from participants. The key issue was whether the programme would be withdrawn as a consequence of the findings of this study

- Communicating the results – the researcher summarised the results of this study to the participants and offered to send them a copy of the final submission to which the majority declined.

CHAPTER 4
FINDINGS AND DISCUSSION

4.1 INTRODUCTION

The objective of this chapter is to present the study's findings. The chapter concludes with a discussion section where a holistic integrated view of the findings is provided by linking theory, previous research and the study's findings.

In this study food security was measured as the sum of five key indicators, divided by the number of indicators, derived per responded. These indicators are discussed under section 3.5.2 (i). The results per responded are recorded in Appendix, B and the summary of the aggregate results are depicted by Figure, 2.

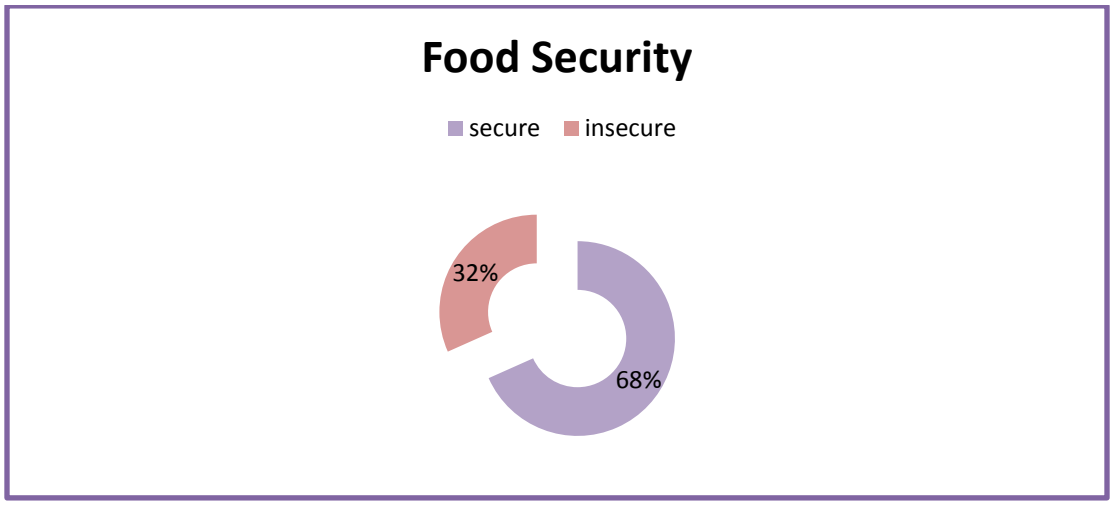


Figure 2: Food security status of respondents

The overall food security of sampled Masibuyele Emasimini based on the determinants of food security yielded the following results. The majority (68%) of beneficiaries are food secured while only 32% is insecure. The Masibuyele Emasimini programme aimed at eliminating hunger and reducing poverty by ensuring that in the long run beneficiary communities are food secure. The programme's target group is poor families, with access to furrow land. The findings of the study are reordered hence forth.

4.2 SOCIO-ECONOMIC CHARACTERISTICS

Ayalew (2003) argues that household food security is strongly linked to the socio economic and bio-physical condition of the household. Several socio-economic characteristics were

investigated to study their influence on food security namely: age of farmer, number of dependents, size of cultivated land, the application of fertilizer, quality of land and knowledge of the farmer. This section looks at the findings off these investigations.

Table 4: Age Group, Gender and Village of Beneficiaries

Age Group	Gender'		Total Number By Age Group	Percentage	Number Per Village			
	Male	Female			Edinburg	New Forest A	Orinoco	Tsuvulani
21-30	8	0	8	6.7	0	5	2	1
31-40	13	8	21	17.5	1	12	1	7
41-50	15	16	31	25.83	3	10	6	12
51 above	31	29	60	50	14	8	12	26
Total	67	53	120	100	18	35	21	46

Source: field survey 2013/2014

4.2.1 Masibuyele Emasimini, and Gender of Respondents

The sampled results indicate that the majority of the farmers in the irrigation scheme are males (56%) and only 44% are female (for a breakdown by village and age refer to Table 4). Mwaniki (n.d) argues that, in order to build capacity and adequately address food insecurity, gender sensitive development is necessary. Mwaniki (n,d) further explains this by stating that the agricultural spinoffs of food security have been noted to increase by as much as 20% when women are given the same production inputs and opportunities as men, women have shown that when educated and equipped, they have the ability to champion change much noticeable that their male counterparts. Mwaniki (n.d) warns that this however does not mean that the contribution of men is meaningless in agriculture or that they should be removed from their roles in the sector rather that agricultural interventions should be sensitive to gender. South Africa has an even greater challenge that is to address past prejudices and discrimination enforced by discriminatory legislation (Mwaniki n.d).

The study shows that there is a mismatch between the number of male farmers/ beneficiaries as compared to females in the new forest irrigation scheme. This indicates that there is a need for policy makers and policy in general to have a strong focus in the inclusion of females in farming, furthermore tailored assistance of female farmers needs to established (Altman et al. 2009).

4.2.2 Age of Beneficiaries in the New Forest Irrigation Scheme

The findings reveal that the majority (50%) of farmers are above 51 years with the least while (6, 67%) of farmers are under the age of 30 (which is the youth). Manona **(**2005) argues that Smallholder farming is at its most efficient and productive when labour is plentiful. The evidence here suggests that labour availability is threatened by the age of the participating beneficiaries and the poor participation of the youth. The age of beneficiaries influences the sustainability of the programme negatively.

4.2.3 Formal Educational Background of the Respondents/Beneficiaries

Abebaw (2003) stated that the education level of people has an impact on their food security. The more educated individuals are the more likely they are to be food secured. They are also more likely to shy away from farming as a means of ensuring their livelihoods. Abebaw further argues that the lower the educational level of the youth the more they are likely to embrace farming as a means of lively hood and business. Conversely the more educated tend to seek employment in other sectors to avoid farming. Figure, 3 below depicts the level of formal education of farmers.

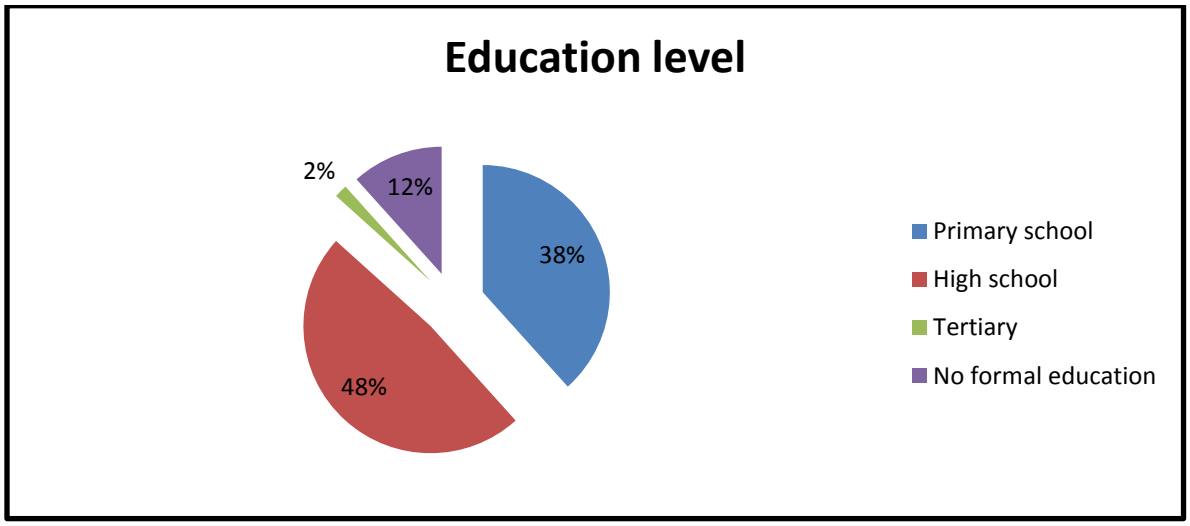


Figure 3: Level of Education of Beneficiaries

This study found that only 2% of the beneficiaries had tertiary education while 48% of them have had some high school education and a further 38 % have primary school education. Only 12% have had no formal education. This reveals that most beneficiaries of the Masibuyele Emasimini programme are not educated and can benefit from extension education and teaching materials.

The majority of the respondents did attend high school which shows the growing levels of basic educated in rural areas which is a positive factor towards the eradication of poverty and a step towards sustainable food security. Abebaw (2003) points out that education provides one with the ability to read, communicate and absorb new knowledge therefore to ensure the sustainability of food security through farming; education should surpass the basics of reading and writing, it must provide and transfer skills to farmers. It is to the researchers' opinion that an increase in the education of beneficiaries would increase the sustainability of the programme.

4.2.4 Employment Status of Beneficiaries

The reader should note that the employment status indicated here is self- reported by the respondents. Allowing the respondents to self -report the categories in which they fall also reveals the attitude and classification in which they see themselves. The results of the employment status of beneficiaries are summarised below in Figure 4.

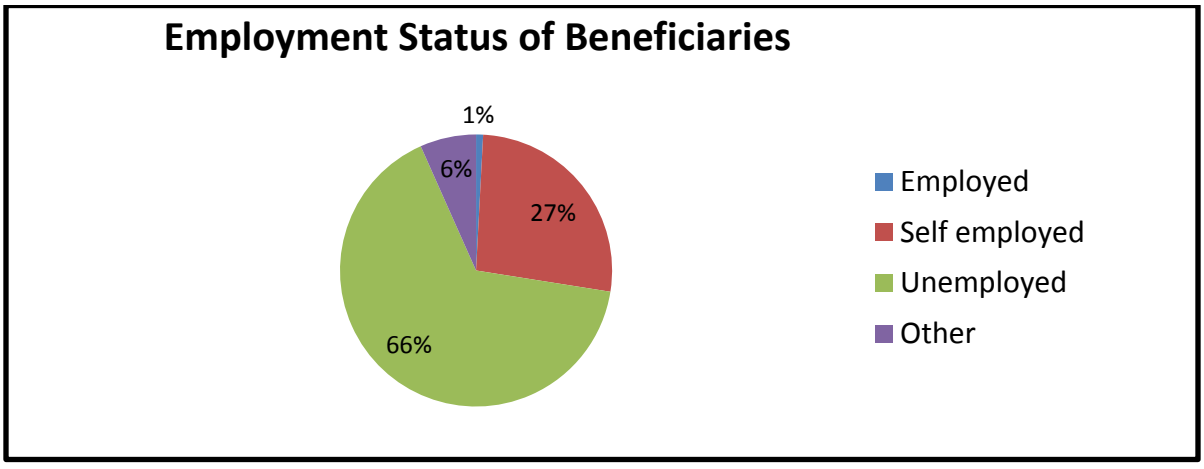


Figure 4: Employment Status of Beneficiaries

The majority see themselves as unemployed (66%), while only 26% of the farmers viewed themselves as self-employed the other 1% were those that were employed by other institutions outside farming, which when interviewed included domestic workers and gardeners. Six percent (6%) indicated other when it comes to employment status (refer to figure: 4).When probed further on the matter; it became apparent that because they get part time jobs now and again they believed that they couldn't classify themselves as any of the three. The fact that majority of the farmers see themselves as unemployed speaks greatly to the level of farming which they do secondly to the profits which they make. Most of the people report themselves as unemployed as opposed to self-employed due to the fact that the level of farming is still largely for subsistence.

4.2.5Household Farming Experience

Smallholder farmers are said to have an enormous amount of local and practical knowledge on issues contributing to successful farming in their localities they also hold collective experience in farming in their localities. The problem is the lack of supporting structures to better develop smallholder farmers (UNEP & IFAD 2013). The intensification of agricultural production and the successful development of the agricultural sector as a whole are argued to be central elements necessary to combat poverty, unemployment and food security especially in developing countries. Smallholder farmers play a vital role in achieving these global objectives (UNEP& IFAD 2013). Table 5, summarises the farming experiences of Masibuyele Emasimini programme beneficiaries.

Table 5: Farming Experience of Beneficiary Household

Farming Experience of Beneficiaries		
Years of farming	**Frequency**	**Percentage**
1-10	36	30
11-20	38	31.67
21-30	27	22.50
31 <	19	15.83
Total	120	100

The results indicate that the majority of the beneficiaries have over 11 years' experience in farming. While 30%range from one year to ten. Nearly 30% of the beneficiaries have experience above 20 years which shows the long standing relationship with farming.

4.2.6 Number of People in Households

Manona (2005) points out that small holder farming is dependent on labour as hiring people is expensive to most of these farmers and the profits they make are in adequate to cater for paid labour. Families with more active members would then be at an advantage when it comes to labour but would also have more mouths to feed. Figure 5, summarises the household sizes of benefiting farmers.

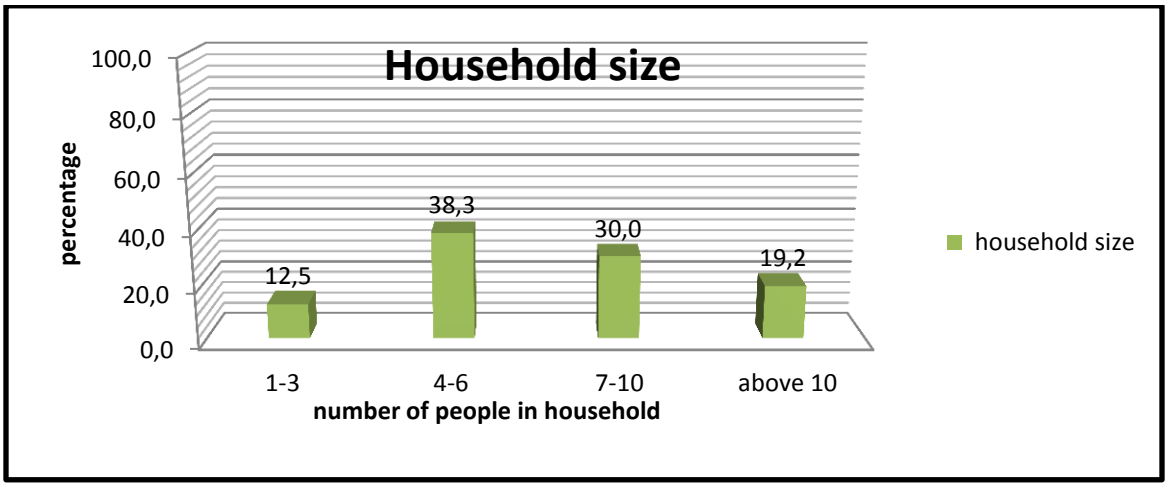


Figure 5: Number of People in Households of Beneficiaries

Stats SA (2015) indicates that the average household size in the Bushbuckridge Municipality is 4.The findings reveal that most of the respondents reside in households of between four to ten people; 38% indicated that they live in a house hold of 4-6 people, 29% indicated that they reside in a household of between 7-10 people, 19% indicated that they reside in house hold above 10 people while 13% live in households with between 1-3 people. The study's results show that most of the families have a relatively average family size (Stats SA 2015). Taking into account that families also have children too young to work small family sizes will mean that although mechanization can be provided by the program; the labour capacity to effectively maintain the farms is still low which puts strain on the farmers. This might threaten the productivity of the farm.

4.3 RESULTS OF LOGISTIC MODEL ON THE DETERMINANTS OF FOOD SECURITY

To answer the question, what socio economic characteristics of the households influence the food security of subsistence and small holder farmers in the New Forest irrigation scheme a logistic regression was performed.

The results of the regression are summarised in Table 6.

Table 6: Logistic Regression estimates of the effects of independent variables on respondent's food security (N=120)

	B	Sig.	Exp(B)
Age of Farmer	.496	**.042	1.642
Farm Experience	.259	.240	1.296
House Hold Size (number of dependents)	-.417	*.078	.659
Level of Education	-.093	.761	.911
Land Size	-.346	.489	.708
Land Use	.354	.457	1.425
Farm Income	1.439	***.000	4.215
Constant	-5.416	.031	.004
Hosmer and Lemeshow Test	**Sig 0.968**		

***** Statistically significant at a 1% level of significance**

**** Statistically significant at a 5% level of significance**

*** Statistically significant at a 10% level of significance**

The level of income, house hold size and age of farmer, show an influence on food security in the new forest irrigation scheme amongst beneficiaries of the Masibuyele Emasimini programme.

The Hosmer-Lemeshow test was used to test the fit of the model to the data. The Hosmer-Lemeshow test is a goodness of fit test applicable to logistic regression models. Allison (2013, p.1) Like any goodness of fit model it tests how well does the model fit the data. When the p-value of the model is low less than 0,05 then the model is rejected while on the other hand if its

greater; that means the model fits the data well. This model has a value of 0.968 was the significance of the model this value is greater than 0.05 thus we cannot reject the model.

4.3.1 Household (number of dependents)

The results (Table 6) indicate that house hold size has an effect on the food security of households at a 10% level of significance. The literature indicated that, smallholder farming is dependent on labour as hiring people is expensive to most of these farmers and the profits they make are in adequate to cater for paid labour. Families with more active members (pupils who have surpassed basic education schooling age, usually around 17 years above) would then be at an advantage when it comes to labour, but would also have more mouths to feed (Manona 2005). These results imply that households with a greater number of dependents are more vulnerable to food insecurity than those with less number of dependents.

4.3.2 Age

The age of respondents has an effect on the food security of sampled households/beneficiaries (Table 6). This study has explored literature that points out that, older farmers (40 years and older) hold an unprecedented amount of experience and knowledge in farming especially in their personal farms. They have developed coping strategies over the years which allow them to manage their crops more efficiently this one of the factors that make them are more likely to be food secured.

4.3.3 Farm income

On the issue of profit or farm income, the evidence suggests that; the greater the farm income (in this study the income group associated with food security. The greater the monthly income the more likely to be food secure. The issue farm income is discussed in length under government expectations. Farm income is a result of a number of variables on which production and sales are central; these aspects are discussed under skills. Farm income is positively associated with food secured households (Table 6) proving itself to be the most detrimental issue in influencing the food security of sampled farmers.

4.4.4 Implications

This regression output suggest that in order to increase the food security of beneficiaries in the study area government intervention should be focused towards improving farm income,

capacitating younger farmers and prioritise households with numerous children and the very elderly. Masibuyele Emasimini programme addresses the capacity of younger farmers, by providing mechanisation, it allows otherwise disadvantaged farmers to increase the size of land they use, by subsidising seeds and fertilizers reducing production costs for farmers creating an opportunity for them to increase farm incomes, by supplying farmers with summer and winter seeds; thus encouraging the use of land throughout the year and the continuous generation of food and income.

4.4 INCEPTION OF THE PROGRAMME

It is important to understand the background on how beneficiaries came to firstly know about the programme, how they became beneficiaries, the number of years in which they have been beneficiaries and what exactly did they benefit from the program. From understanding this, one can then move on to assess what should be and what is. One key question posed in this study was whether or not the beneficiaries were involved in decision making process about the programme?

The study asked the respondents if they know off the Masibuyele Emasimini programme before addressing program and beneficiary specific questions. To this, all the respondents indicated that they know off the Masibuyele Emasimini programme, secondly they have benefited from the programme at one point or another.

4.4.1 Source of initial knowledge of the programme

According to Van den Ban and Hawkins (1988) farmers need to have a reliable source of information in order to improve their farming knowledge. Some of the most cited sources of information include; extension services, informative agricultural radio broadcast, fellow farmers, and research stations. The study asked respondents about their source of initial knowledge of the programme, and their responses are recorded in Table: 7.

Table7: Respondents Sources of Information about the Programme

Respondents sources of information and the programme		
Sources	**Number**	**Percentage**
Friend	2	1.7
Media	9	7.5

Extension Officer	2	1.7
Farmers Meeting	52	43.3
Other	55	45.8
Total	120	100.0

The findings indicate that farmers were formally informed of the programme either directly at farmers meeting or through already established farmer committees.

4.4.2 Number of years benefiting from the programme

When asked to recall the specific years in which they have benefited from the programme and aggregate those years, the majority indicated that they have been beneficiaries for four years. It is the writer's observation that the number of years one has been a beneficiary are not sequential due to inconsistency of service delivery with reason discussed under challenges; thus a 4 year beneficiary could have benefited in 2007, 2008, 2010 and 2012.

This finding is similar with Siyanga (2009) study of Zambia's fertilizer support programme where it was found that even after seven years of the programme running, the magnitude of its impact was still not clear indicating that the number of years might be insufficient to have a lasting impact on the beneficiaries, especially on the very poor.

4.4.3 Nominators of beneficiaries

The Masibuyele Emasimini policy guideline and implementation model 2011-2015 states that beneficiaries will have to apply through local structures that are part of the Masibuyele Emasimini user associations (Masibuyele Emasimini 2011). However, this criterion is open to interpretation.

Table 8: Nominators of beneficiaries

Nominator	**Frequency**	**Percentage**
Extension Officer	7	5.8
Committee	113	94.2
Other	0	0
Total	120	100

To become a beneficiary one needs to be nominated and included within the beneficiary data base. The initial stages of the programme were informal in its approach. However as financial departments demanded proof of work done, a more formalized system was introduced.

The question here is who nominated these farmers to become beneficiaries. Knowledge of this will indicate which party has played a huge role in the nomination of beneficiaries.
About ninety four percent of the beneficiaries indicated that they were nominated by established Masibuyele Emasimini committee, while 5.8% said Extension Officers nominated them. Thus it is clear that Masibuyele Emasimini committees were the main determiners off who is nominated to be a beneficiary. This shows that the decision making powers, on beneficiary nomination, were placed upon the Masibuyele Emasimini committees above any other party.

4.4.4 What does the programme assist beneficiaries with?
The Masibuyele Emasimini policy document has three key aspects it identified to help people with: firstly, mechanization (tractors & implements), secondly, seeds and lastly fertilizers (Masibuyele Emasimini 2011). The respondents were asked what they benefited from the programme and all indicated that at one given point in time, in their lives they have benefited from the programme (Figure 6).

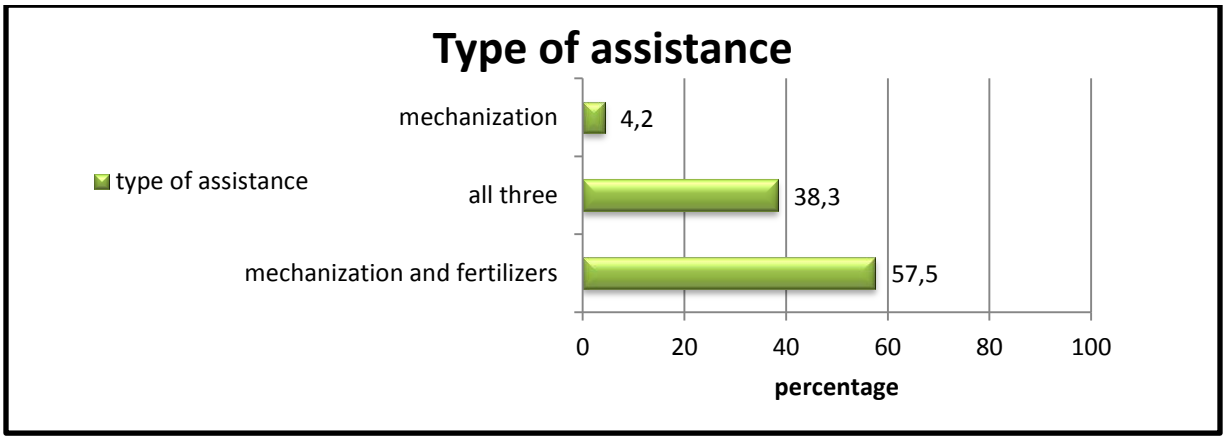


Figure 6: What does Masibuyele Emasimini assist beneficiaries with?

It is apparent from the findings that the majority of the respondents benefited from mechanization and fertilizers services or all three promised inputs. Pointing out that the

programme does deliver the promised benefits to selected beneficiaries; however this does not factor into consideration elements such as delivery time and who benefits.

4.4.5 Frequency of assistance from the Masibuyele Emasimini programme

Most beneficiaries (Figure 7) indicated that they mainly receive input assistance from the programme once a year (86.7%). The fact that majority of respondents get assistance only once a year speaks to the shortages of tractors and secondly to the inability of the programme to meet the demand. The fact that the programme provides free inputs has led to a dependency problem with some of the farmers who wait for free mechanization and inputs from the programme and end up with late production or disappointment when the programme is unable to deliver.

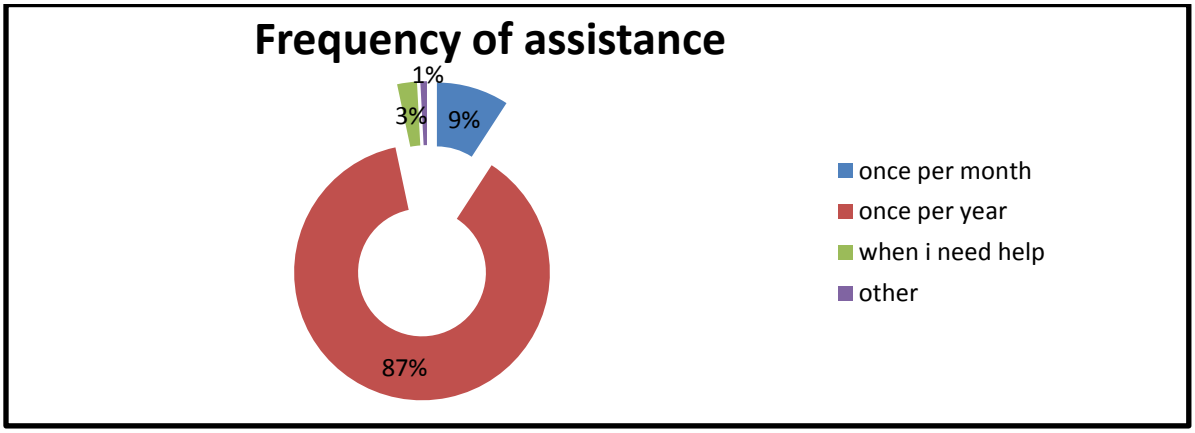


Figure7: Frequency of assistance from Masibuyele Emasimini

Because of the inability to adequately provide mechanization services, beneficiaries from the irrigation scheme have started utilizing subsidized paid mechanization in order to reduce dependency on free Masibuyele inputs. The move towards doing this, though done out of dissatisfaction with the programme, has pushed farmers one step towards self-sustainability.

4.4.6 Number of hectares assisted with mechanization

Najafi (2003) states that farm size is a positive contributor to food security of sustenance farmers; the more land they have the more they can cultivate. Ayalew (2003) emphasizes the relationship between farm size and crop production the larger the cultivated area the bigger the produce which increases food security.The responses are indicated in Figure 8.

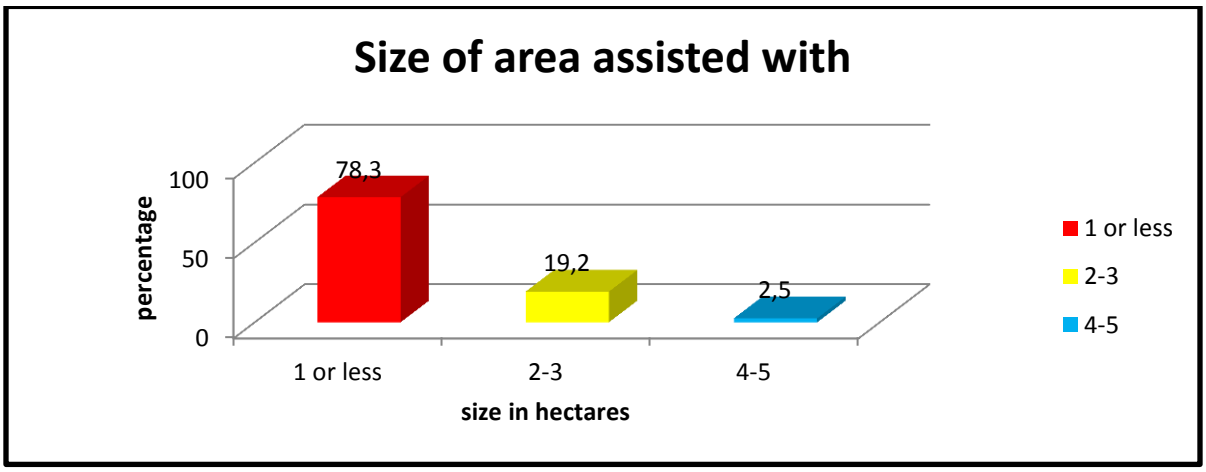


Figure 8: Number of hectares assisted with mechanisation

Most of the respondents (78.3%) indicated that they get assisted with one hector or less. None of the respondents gets assisted with more than five hectare. This also indicates that there is biasness, within the programme because some were assisted for 6 levies which is half a hectare. The results depict that the majority of beneficiaries plough less than a hectare of land which might have an impact on the long term sustainability and growth of the beneficiaries if mechanisms are not put in place to expand the farm sizes along with production.

4.5 SKILLS TRAINING

Any project needs well equipped and skilled individuals to collectively make it work. Furthermore, for it to be sustainable a balance of skills needs to be present. The Masibuyele Emasimini Programme aimed at increasing farmer production by providing them with production inputs. This intervention along with already established assistance in the form of Extension Advisors were believed by policy makers that they will eventually lead to the growth of subsistence farmers and smallholder farmers to commercial farmers; thus the end result would be sustained growth (FAO, IFAD and WFP 2013).

Farmers have a lot of knowledge pertaining to farming in their specific area of farming. They often do not know the latest developments globally that can help them. Extension servicers play a role of bridging this gap between research, technology and farmers. This knowledge can take various forms from pests and disease control, seed development and fertilizers all aspects that can help smallholders produce more for less (FAO, IFAD and WFP 2013).

Farmers will acquire skills of various kind applications and essential in the running of a successful farm these skills could be technical, managerial, crop management financial and record keeping (FAO, IFAD and WFP 2013).

Transferring knowledge to farmers is central to extension services, this means that extension providers should be skilled secondly should learning as new developments arise in order to equip farmers. Extension agents should research well what skill is of need in the area they are based, this will allow them to arrange suitable learning experiences for farmers (FAO, IFAD and WFP 2013).

The question however, is whether the beneficiaries of the programme were equipped with the necessary skills, to make this programme successful and sustainable. The responses of the farmers are reflected in Table 9, where mean values are calculated using the formula 2.

The mean provides the central location to the data. Mean is calculated by adding up all the numbers in the set and dividing that sum by the number of entries. Equation of mean is:

Mean Formula:

$$\overline{X} = \frac{\sum X}{N} \quad \text{..... (2)}$$

Where:

N=the number of observation in the sample or number of scores.

X= is the symbol for a sample or symbol for the scores.

123.... = score or value number (1) would mean fist value 2 second and so forth.

∑= is the summation.

$\bar{x}$= is the mean

Therefore the mean is calculated as:

$$\sum xi = \frac{x1 + x2 + x3 + \cdots xn}{n}$$

Table 9: Technical skills of beneficiaries

Technical skills										
Were beneficiaries equipped with the following skills?	Soil Preparation		Irrigation Schedule		Planting Depth and Spacing Of Different plants		Pest and Disease Control		The Application of Fertilizers and Knowledge of Types	
	(3.733)		**(3.692)**		**(3.475)**		**(2.317)****		**(3.650)**	
	N	%	N	%	N	%	N	%	N	%
Strongly Disagree	13	10.8	9	7.5	17	14.2	67	55.8	18	15.0
Disagree	1	0.8	3	2.5	7	5.8	13	10.8	0	0.0
Uncertain	15	12.5	34	28.3	26	21.7	3	2.5	22	18.3
Agree	67	55.8	44	36.7	42	35.0	9	7.5	46	38.3
Strongly Agree	24	20.0	30	25.0	28	23.3	28	23.3	34	28.3
Total	120	100%	120	100%	120	100%	120	100%	120	100%

(**below average mean value of 2.5)

Five variables were used to determine the technical skills of the beneficiaries of Masibuyele Emasimini. The mean value ranged from 2.317 to 3.733 with one less than 2, 5. The mean provides a measure of central location of the data. From the findings it can be deduced that the majority of the beneficiaries agreed that they were well equipped with technical knowledge on soil preparation (strongly agree and agree), (75.8%, m=3,733), irrigation schedule (61.7%), planting depth (58.3%, m=3,475),and spacing and application of fertilisers(66.6%, m=3,650). Only (55%, m=2,317) of the beneficiaries strongly disagreed that they had skills training on pests and disease control.

4.5.1 Technical Advice and Information

Extension servicers provide technical advice and information to farmers. The information and skills cover a range of issues that affect farmers such as markets, options of funding, technical advice that speak directly to production issues, issues pertaining to the management of crop during and post-harvest and pest and disease control.

4.5.2 Demonstrations

In most cases practical demonstrations are effective at getting the message across especially when it comes to technical skills. Extension advisor use demonstrations to equip farmers with skills demonstrations also allow all forms of literacy and illiterate farmers to gain essential skills. They give first hand experiences to farmers and allow for contrast between varieties of growth rates to be seen. The practicality of demonstrations and the fact that they provide concrete results makes then an unprecedented teaching tool (Axinn 1988).

There is an indication as tabulated in Table 9; that majority of the respondents are equipped in the technical skills required in running a crop farm. Soil preparation was the highest ranked skill while pest and disease control are the poorest. The fact that there is little disease control in place, suggests that even if the programme is successful in increasing production it will be threatened by the lack of pests and disease control. The lack of pests and disease control can be detrimental if the crops get infected by a disease or if pests attack, them they can be destroyed to an unmarketable degree causing a major loss for the farmer.

4.6 FINANCIAL MANAGEMENT

4.6.1 Record Keeping and Banking

Agbo (2013) highlighted the need of farmers of all scales to keep records of expenditure and income as well as all farm related activities he points out that keeping records can help farmers to improve on their farming and increase profit from it. Saving is an essential component of a real business and if farmers take farming seriously then saving should be central to their activities (Agbo 2013). Furthermore in order for farmer's especially small holders to increase the income, track the progress and have the ability to motivate financial investment into their farms record keeping and saving/banking are critical components. The lack of proper records and of saved up funds means that the farmer will fail in coming up with an effective budget, will prevent the farmer from seeing opportunities where saving can occur, they will not be able to identify the abuse of funds or resources by themselves or employees and poor saving/banking leads to poor development of farms a farmers towards commercialisation (Agbo 2013).

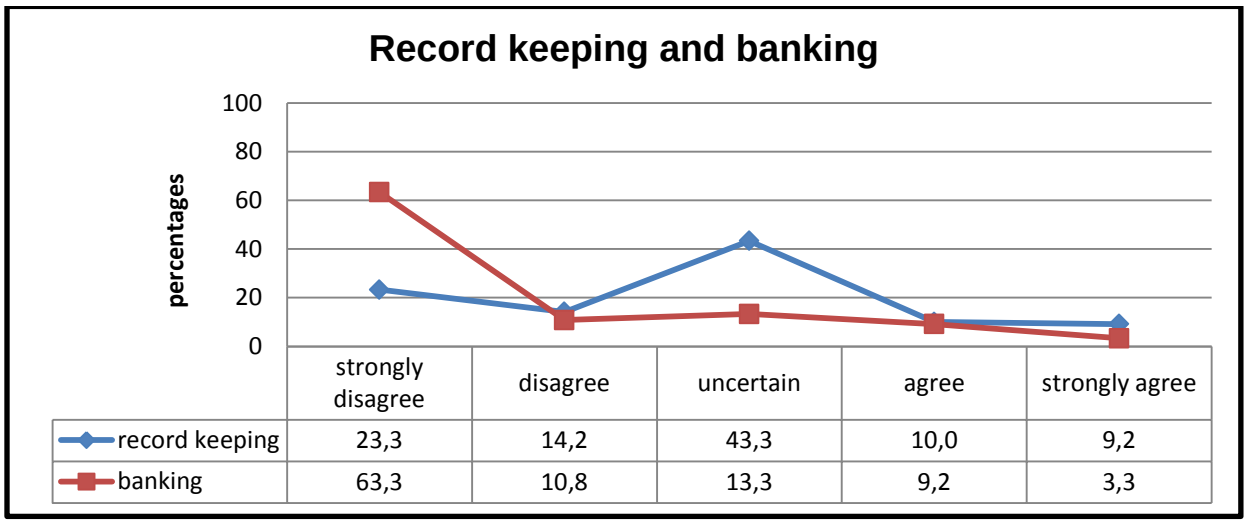


Figure 9: Record keeping and banking

Figure 9, above compares farmer banking with financial record keeping. 14.2% disagree and 23.3% strongly disagree that they keep record of farm earnings; 10% agree and 9.2% strongly agree. On the other hand 63.3% of the respondents indicated that they strongly disagree that they bank their earnings and 10% disagree that they bank their farm earning while 13.3% were uncertain if they bank their earnings. 9.2% agree and a further 3.3% strongly agree that they bank their farm earnings.

The results clearly indicate that farmers (specifically beneficiaries) have poor financial management. They do not keep record of their earnings and hardly bank their earnings which also indicate poor saving from farmers, such behaviour implies that the farmers are losing opportunities to become effective self –sufficient, their poor record keeping, then from identifying saving opportunities it also locks them in a dependency syndrome furthermore prevents them from tapping into financial aid that can be the difference between them being smallholder farmers to being commercial farmers (Agbo 2013).

4.6.2 Marketing and markets

It is argued that in order for Africa to reduce hunger agricultural productivity should be increased, the increase in production should also be directly linked to markets. In the global economy we live in today success of the agricultural sector greatly depends on the expansion of market opportunities. On a local level the access to markets is a crucial aspect in ensuring the prosperity of agricultural enterprises. Transport and storage cost African farmers large sums of money which can only be recovered if the produce has adequate markets (Diao & Hazell 2004).

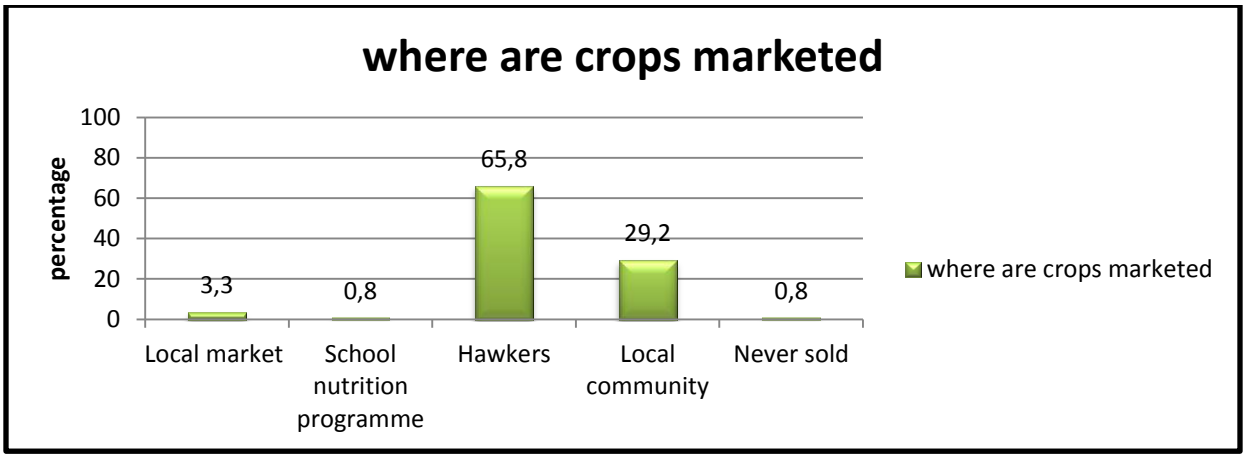


Figure 10: Marketing of crops

The main place where the produce is sold is to hawkers (Figure 10) who sell at the sidewalks and in the nearest town (65.8%), they sell the crops in bulk to hawkers and some are hawkers themselves. What would happen is that one family member usually children would be charged with the hawking tasks the kind of hawkers and the crops that are sold differ, in capacity from a informal street hawkers who only want one box of tomatoes to an informal hawker supplier; which is a person usually with a car who buys in bulk about 10 to 30 boxes in order to sell to smaller hawkers who have transport issue getting to the farmers. There was an indication that the farmers were going to enter into a contract with the Department of Education to supply local schools with crops as part of the school nutrition programme. This contract would significantly increase the farmers market.

4.6.3 Part of a cooperative

An agricultural cooperative provides a platform where framers can pull resources together in order to reduce costs share knowledge and increase farm income. Being members of the cooperative opens opportunity where they enter into market contracts as a collective and make sure produce are collected from all members for selling and able to keep the contract stable (Toluwase & Apata 2013; Siyanga 2009).

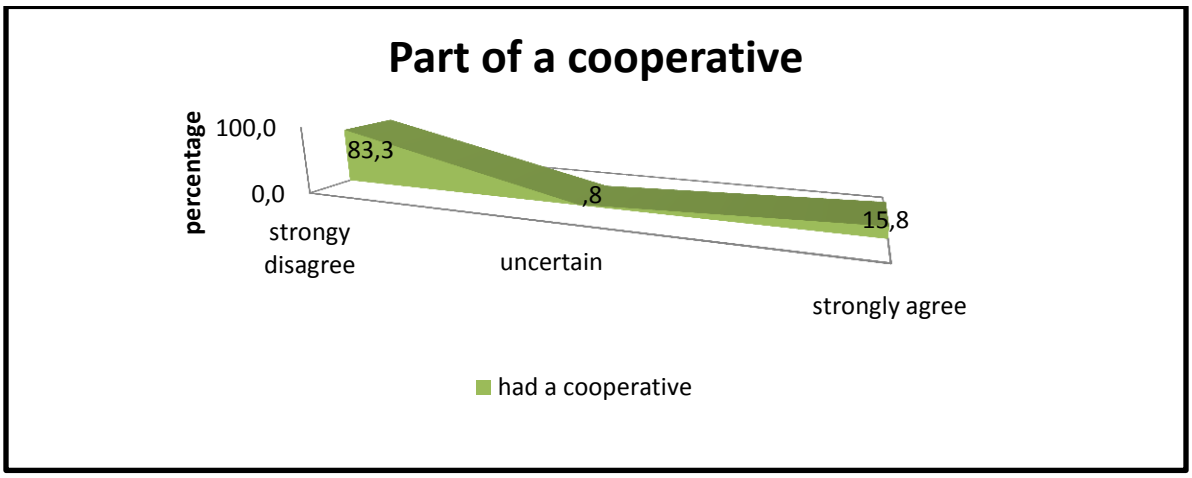


Figure11: Part of a cooperative

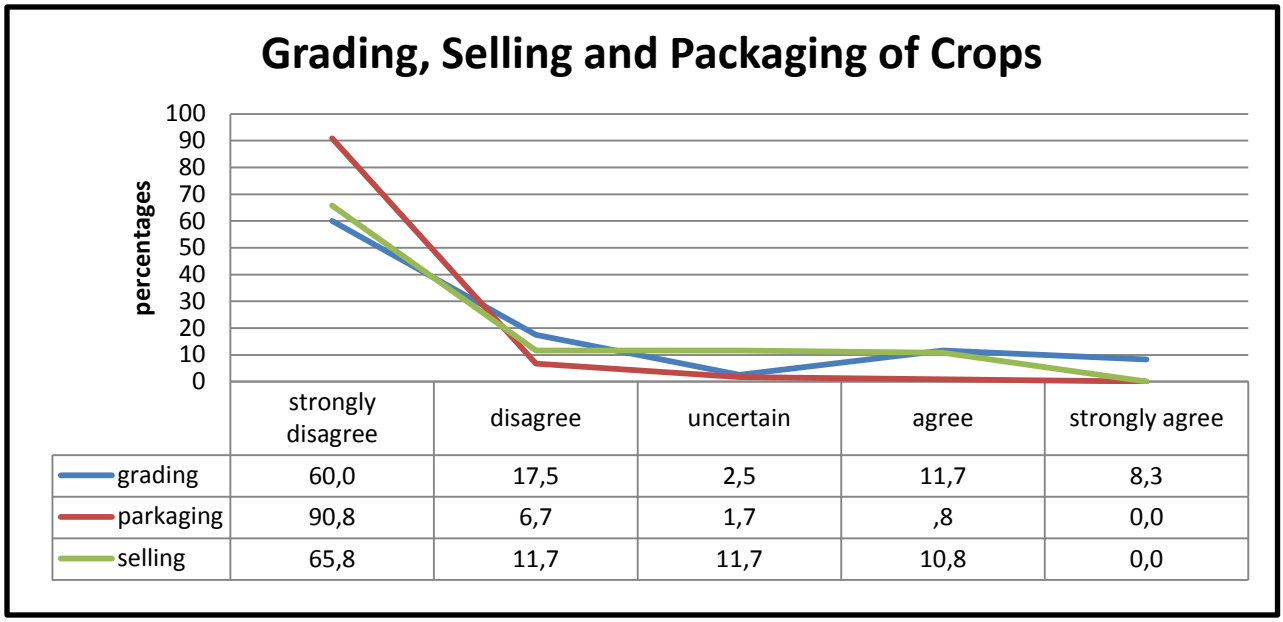
Siyanga (2009) points out that farm aid beneficiaries form cooperatives with the goal of receiving government promised benefits. These cooperatives are not developed and lack the capacity to effectively market their produce. Furthermore there is need to strengthen the cooperatives in collective action and bargaining when it comes to marketing of the produce. Cooperatives should be transformed into effective instruments of change (Siyanga 2009).An agricultural cooperative provides a platform where framers can pull resources together in order to reduce costs, share knowledge and increase farm income(IFAD 2011). Being members of the cooperative opens opportunity were they enter into market contracts as a collective and make sure produce are collected from all members for selling and able to keep the contract stable(IFAD 2011).

Figure: 11, illustrates the number of respondents who are part of a cooperative only 15.8 % are part of a cooperative while 83.3% are not. Which implies; that the majority of the beneficiaries do not have the advantages that come with being part of a cooperative which limits their access to the market.

4.6.4 Grading, Selling and Packaging of Crops

Grading is a system of categorising produce according to its quality and placing similar quality and size together, this helps producers also price produce better with the grade receiving the highest pricing furthermore grading ensures that the overall value of the produce is not reduced by rotten or damaged produce. Production is one aspect of farming which should be

accompanied by the ability to sell the crops, however, Fasoyiro and Taiwo (2012) point out that the majority of harvest is lost due the lack of technologies and skills pertaining to packaging handling and storage furthermore the poor linkages that exists between research and farmers plays a role in the post-harvest loss. They consider the lack of marketing channels and knowledge of these channels especially for rural smallholder farmers as most detrimental. Poor packaging can lead to spoilage and infestation lessening the lifespan of produce and decreasing profits. It is crucial that along with production skills management market and financial skills be developed.



	strongly disagree	disagree	uncertain	agree	strongly agree
grading	60,0	17,5	2,5	11,7	8,3
parkaging	90,8	6,7	1,7	,8	0,0
selling	65,8	11,7	11,7	10,8	0,0

Figure 12: Grading, Selling and Packaging of Crops

Figure 12,reveals that the majority of respondents who are mostly beneficiaries do not have the skills to grade, package and sell crops with 60%, 90.8% and 65.8% respectively. Such strong results on a lack of crucial skills are frightening; food production without the ability to sell the produce leads to a loss and is unworthy the endeavour to begin with.

It is not unusual for smallholder farmers to not package their produce, however the inability to adequately sell their produce leads to a financial loss which further traps families in poverty and reduces their long-term food security. The Masibuyele Emasimini programme aimed at increasing farm income but, however, the results suggest that there might be a need for an intervention on the market level.

4.7 CROP MANAGEMENT SKILLS

The data analysis (Table 10 indicates that the beneficiaries of Masibuyele Emasimini in New forest irrigation scheme disagreed with the statement that they do apply organic fertilisers to improve soil structure with (20% strongly disagree+21.7% disagree)(m=2.717).While agreeing that they do practice crop rotation (28,3% strongly agree + 11.7% agree), (m=3,4), moreover they irrigate their crops regularly(28,3% strongly agree + 40.8% agree), (m=3.858) and lastly responded indicated that the majority of them practice regular weeding (27,5% strongly agree + 24.2% agree), (51.7%, m=3.6).

Table: 10. Crop management skills

Management of the Crops								
Were the beneficiaries equipped with skills in order to manage the crops?	Apply Organic Fertilizers		Crop Rotation		Irrigation		Regular Weeding	
Mean	**(2.717)****		**(3.4)**		**(3.858)**		**(3.6)**	
	N	%	N	%	N	%	N	%
Strongly Disagree	24	20.0	7	5.8	5	4.2	4	3.3
Disagree	26	21.7	20	16.7	4	3.3	15	12.5
Uncertain	37	30.8	45	37.5	28	23.3	39	32.5
Agree	26	21.7	14	11.7	49	40.8	29	24.2
Strongly Agree	7	5.8	34	28.3	34	28.3	33	27.5
Total	120	100%.	120	100%.	120	100%.	120	100%.

(lowest mean value)**

4.7.1 Weeding and Irrigation

Irrigation can increase yields by reducing the risk of crop wilting by shortage of water, it allows farmers to plant all year round furthermore it affords farmers the ability to diversify and intensify production it can act as a catalyst that pushes farmers from subsistence to small holder and so forth all these benefits cascade towards creating a opportunity for higher income for farmers the types of crops that a farmer can produce if they irrigate increases dramatically **(**Ayalew 2003). The Table 9 clearly illustrates that respondents are surer of their ability to irrigate plants and are a little uncertain of weeding the results show on average a positive picture of these two skills.

4.7.2 Organic Fertilizers

Siyanga (2009) states that the increase in the use of fertilizers and other production inputs is necessary to ensure rural productivity and reduce poverty input subsidies lay a vital role in stimulating rural growth, alleviating poverty and increasing food security. Fertilizers are expensive to buy but fertilizers can also be crop residues, dead weeds and so forth. Soil loses it nutrients overtime when over ploughed. It is essential that it be given time to recover. Crop rotation and the use of organic fertilizers are mechanisms of preventing soil degradation and ensuring soil quality and nutrients and also help to control pests and diseases. Table: 9 indicate in percentages the number of respondents who have these skills and utilise them. 20% plus 21.7% strongly disagrees and disagree respectively; that they have the skills to fertilise organically. 30.8% of the respondents are uncertain if they have the skill; 21.7% plus 5.8% have the skills to fertilize their fields using organic fertilizers.

4.7.3 Crop rotation

5.8% beneficiaries strongly disagree plus 16.7% disagree to practicing crop rotation, a further 37.5% are uncertain if they practice crop rotation. Further probing revealed that they do not have designated areas in the farm to plant specific things thus some rotation occurs they are uncertain due to the fact that they are in fact not consciously practicing crop rotation it's a matter of incident .11.7% agree and 28.3 strongly agree to practicing crop rotation.The results on crop rotation in the New Forest irrigation scheme show a negative skills and practice set. A great extent of beneficiaries reported not to practice organic fertilization and also do not practice crop rotation.

The implication of such lack of adequate crop management leads to poor production in terms of quantity and quality.

4.7.4 Supply, Sell Consistency and Contract with the Market

When farmers lack a stable market they are at a serious risk off loss because if no buyer occurs their produce perishes. The lack of supply and sell consistency is a huge challenge as it undermines all the efforts of farmers to produce the crops (Manona 2005).

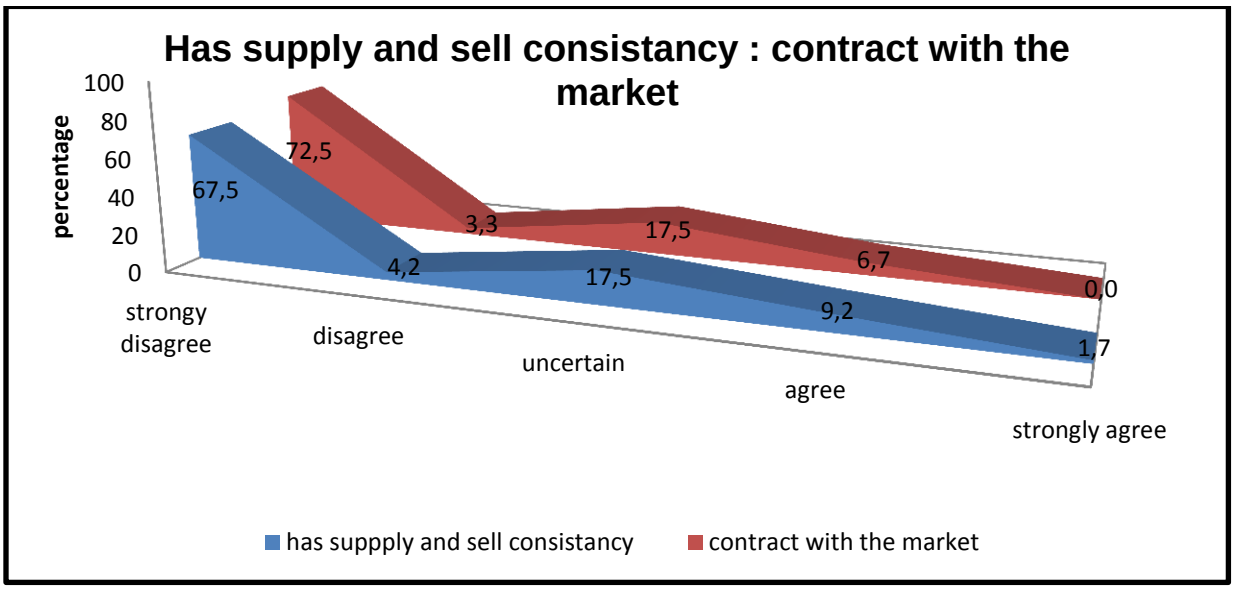


Figure 13: Supply, sell consistency and contract with the market

The results indicate that there is little supply and sell consistency with 67.5% of the respondents indicating that they do not have consistency in supplying and selling of their produce. Their responses when asked if they had contract with the produce market also did not fare any better 72.5% reported not having contract with the market for their produce.

4.8 CHALLENGES

Challenges are to be expected in any endeavour. Masibuyele Emasimini is no exception; the respondents were questioned about the challenges that face the program from a beneficiary (farmer) and extension advisor (implementer) point of view. Respondents were asked if they have or experienced challenges with the Masibuyele Emasimini programme? The need to ask such a question is that, although challenges are inherent and expected to a degree in all programmes. What is a challenge is a subjective matter and not everyone identifies with the same phenomena as challenges, one's challenge might be another's opportunity; take bribery for instance to the unlawful and corrupt this might be an opportunity to abuse the system for selfish gain. But challenges when faced by the majority and disrupt the successful implementation of the programme need to be investigated and that is what the chapter aims to do.

4.8.1 Do beneficiaries have challenges with the programme?

120 respondents were asked if they have faced challenges with the program 96% indicated to have experienced or identify problems with the programme only 4% said they do not have any challenges with the programme.

4.8.2 Poor communication

The Department of Agriculture hired a service provider to deal with the programme in terms of providing production inputs and also the hiring of drivers and tilling of land. Problems started arising when the service provider which is a separate entity (profit driven) faced challenges that they failed to address and communicate which led to a communication breakdown at all levels. Thus there is a limited control of production inputs by Extension Advisors. Figure 14, depicts farmers opinions on poor communication within the Masibuyele Emasimini programme.

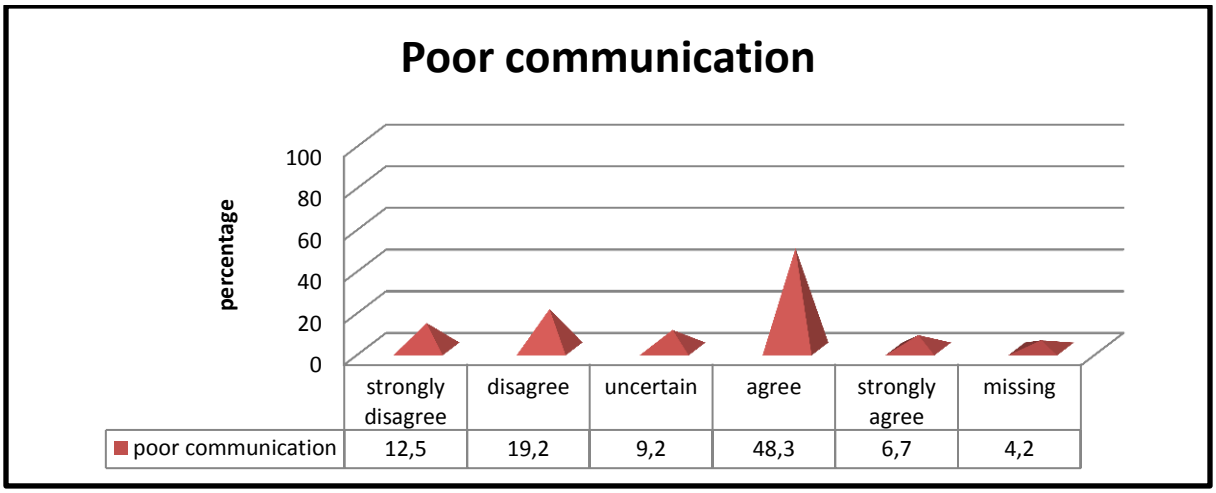


Figure 14: Poor communication

The study found that 48.3% of the respondents agree that poor communication between the service providers, farmers and between the Extension Advisors and farmers is a challenge. While 6.7% strongly agree that poor communication is a challenge affecting the performance of the programme, 19.2% of the respondents disagree with this notion and an added of 12.5% of the respondents strongly disagrees, while 9.2% are uncertain the remaining 4.2% indicated as missing. These are those that indicated that they do not see nor experience any challenges with the program and those that had no comment on this matter.

It is evident from these results that the majority of people have had challenges with poor communication while dealing with this programme. From further probing and interviews with both farmers and Extension Advisors (see methodology section) it became apparent that both beneficiaries (farmers) and Extension Advisors (implementers) have had numerous instances where poor communication has hindered the effective functioning of the programme. Farmers point at Extension Advisors and elected committees for the breakdown in communication, claiming not to have been informed in time about diesel problems or any other problem. On the other hand, Extension Advisors blame administrative constraints caused by dual governance of mechanization (tractors).

4.8.3 Limited Control of Tractors

Limited control is not at the forefront of challenges which the beneficiaries face according to them (Figure 15); Extension Officers do not have full control of mechanization because control of the tractors has been bestowed upon the service provider who operates them.

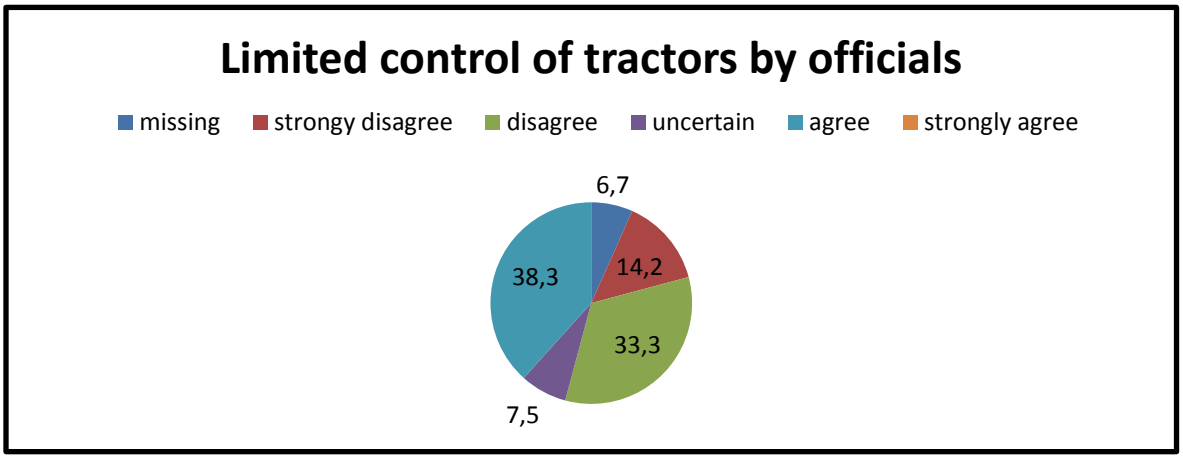


Figure 15: Limited control of tractors by officials

Figure 15, illustrates the percentages of respondent's responses to Limited control of mechanisation by officials as a challenge. 38.3% agree that the limited control of tractors is a challenge, while 33.3% disagree and 14.2% strongly disagree only 7.5% are uncertain. Interestingly enough the number of missing responses increased from those who indicated that they have no challenges. Limited ted control of tractors is a challenge because service providers are profit driven therefore they wish to maximise profit sometimes at the expense of service delivery.

4.8.4 Limited Mechanisation

Free mechanisation is one on the key aspects that the Masibuyele Emasimini programme subsidises. It plays a central role in the whole concept of reducing production cost for rural farmers who are often poor and unable to afford production inputs such as mechanisation (Masibuyele Emasimini 2011). Figure 14 below summarises farmer's experiences and opinions on limited mechanisation.

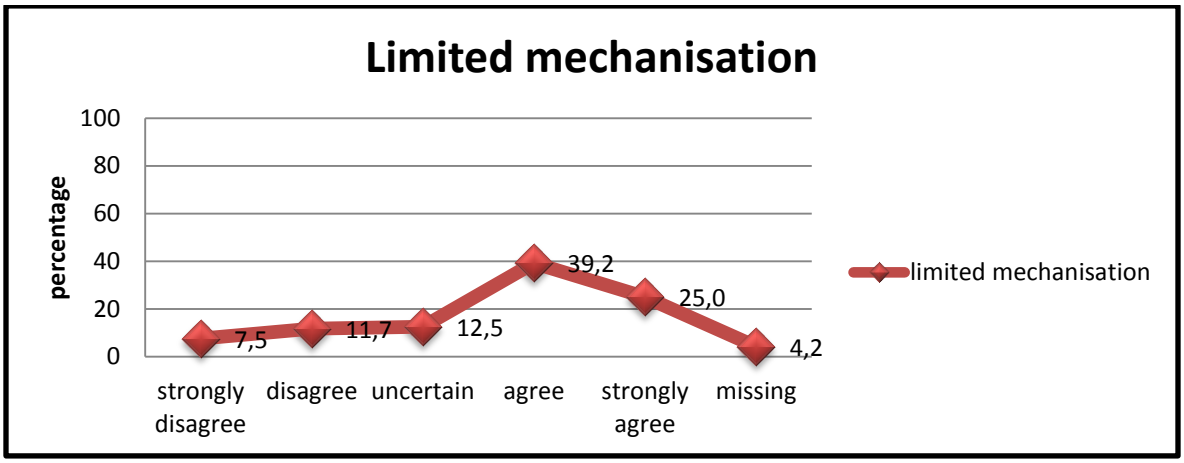


Figure 16: Limited Mechanization

Figure 16 shows that 39.2% of the respondents agree that limited mechanisation is a challenge an additional 25% strongly agree with this notion however 11.7% disagree and 7.5 strongly disagree.

The whole municipality has plus minus 40 tractors they can use. The problem is although 40 sounds like a lot, it can hardly meet the demand especially since the demand is time and season based starting too early of too late discourages farmers as most of their produce is rain depended. Interviews with Extension Advisors revealed that the number of farmers in the municipality and the size of the municipality render the 40 or so tractors inadequate, especially during summer when planting season begins. Secondly, during this period dry land farmers prioritised when it comes to mechanization the rationale is that they didn't benefit during winter for winter crops.

Further exploration of the subject revealed that the fact that the tractors were free increased the demand for them but also the dependence on them. Mechanisation is a crucial aspect of modern farming it allows for faster more efficient which brings about high production farming without mechanisation significantly disadvantages rural farmers (Motes 2011).

4.8.5 Insufficient Production Input and Late Arrival of Seeds and Fertilizers

The subsidisation of production inputs is one of the main tools used by the Masibuyele Emasimini programme to address food security, motivate communities to engage in farming and alleviate poverty in rural areas (Masibuyele Emasimini 2011). Therefore, as a key deliverable the lack or insufficiency of production inputs directly affects the productivity of farmers and minimises the chances of the programme meeting it's afore mentioned objectives. Figure, 17 below summarises the findings pertaining to production inputs.

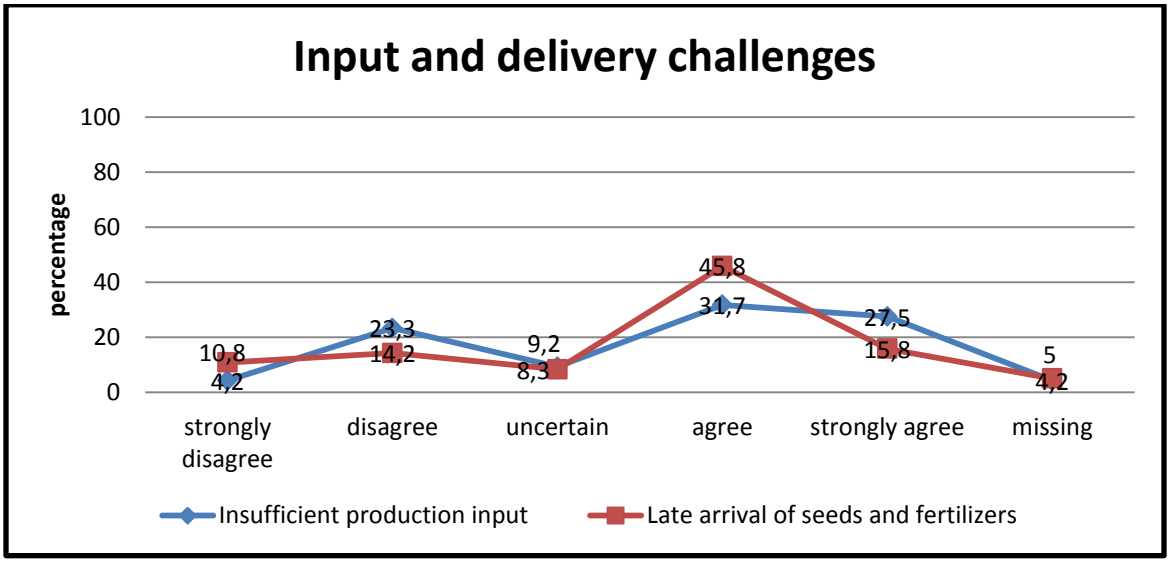


Figure17: Insufficient production input and late arrival of seeds and fertilizers

The results indicate that there is a great number of respondents that agree that insufficient production inputs is a challenge faced by the Masibuyele Emasimini programme an even greater percentage see the late arrival of seeds and fertilizers and a challenge to their farming practices. 27.5% of the respondents strongly agree and 31.7% agree that insufficient production input is a major challenge of Masibuyele Emasimini programme while 9.2% are uncertain 23.3% disagrees and 4.2 strongly disagrees with this challenge.

The supply of production inputs is insufficient; most beneficiaries said that they ended up dividing the inputs with small cups so that everyone could have a share. In more dire shortages, Extension Officers and Masibuyele Emasimini committees resorted to giving only the youth, the

production inputs; Due to the fact that they are smaller in number and to encourage their continued participation in farming.

4.8.6 Driver experience, bribery and lack of consultation

During the year 2012, the Mpumalanga Department of Rural Development and Land Reform as well as the Ehlanzeni District Department of Agriculture, came under spotlight when news media reported the lack of perceived progress on the Masibuyele Emasimini programme. Key points pointed out in one of the articles sparked interests and informed some of the questions posed by this study. Van Rooyen (2012) writing for Farmers Weekly alleged that there was corruption rooted within the department and the appointed service provider to roll out the Masibuyele Emasimini programme. Furthermore there is corrupt behaviour in the form of bribery by the tractor drivers employed by the service provider. The corruption was argued to hinder the proper implementation of the programme and waste government funds without achieving any of its objectives.

This study sought to find the authenticity of these claims and more crucially the impact it has on the programme from the beneficiaries' point of view with an aim to establish the sustainability of the programme? Figure 18 summarizes the responses of tree key aspects; driver experience, bribery and the lack of consultation.

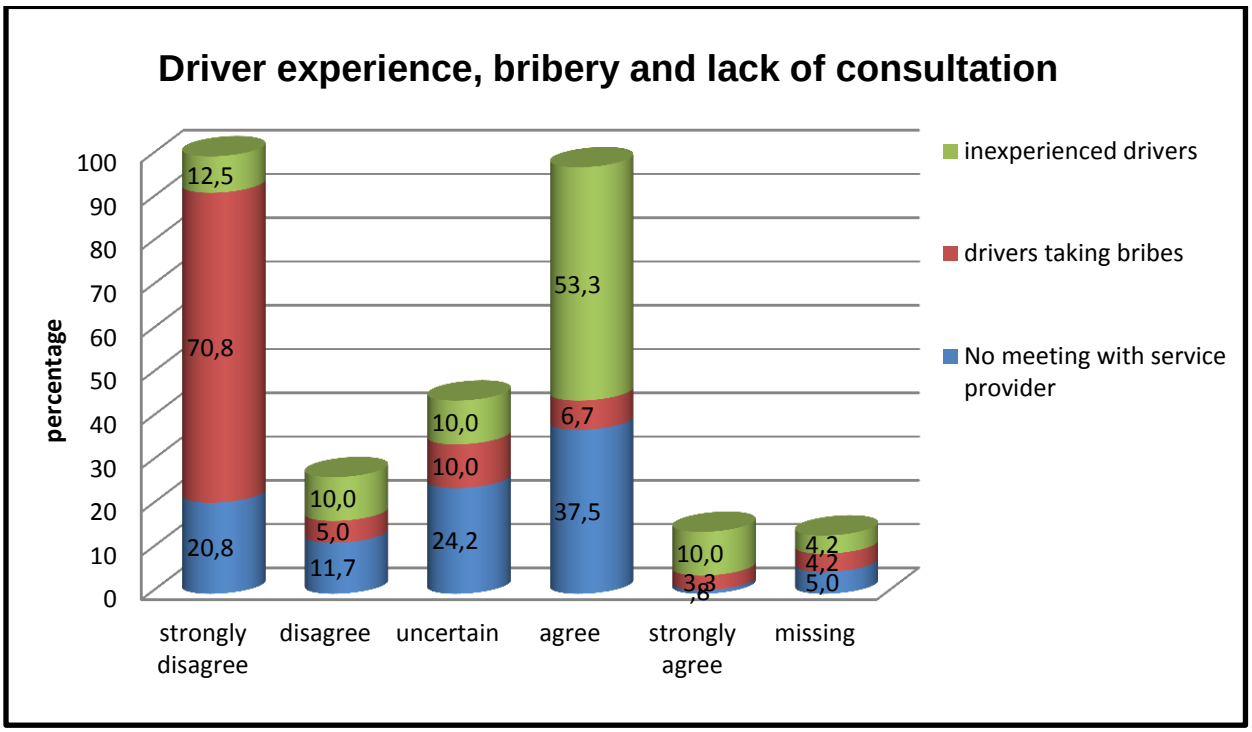


Figure18: Bribery, drivers experience and lack of consultation

It is clear that the lack of experience of drivers is by far the greatest of the three challenges identified by beneficiaries followed by the lack of meetings with the service provider. Bribery on the other hand seems to be on the low and is not recognised by most as a challenge. These results reveal that the majority of respondents see the lack of driver experience as a challenge of the programme. Farmers complain that the inexperience of drivers ruins the structure of their farms and that the drivers do not plough across the slope rather along the slope which causes issues of erosion.

The few who indicated bribery indicated that when farmers want to be prioritised they pay the drivers and the drivers diverge from allocated work area to firstly assist them which is a clear abuse of the system. Most indicated that they have never had a meeting with the service provider to explain or inform them of matters pertaining to the programme.

4.8.7 Political interference

Maiyaki (2010) outlined the impact of political interference and general unrest in Zimbabwe on the performance of the agricultural sector. According to this author political unrest and miss-informed interference can be detrimental to the progress of the sector, inhibiting its

sustainability. The opinions of farmers on the political interference in the Masibuyele Emasimini programme are depicted by Figure, 19.

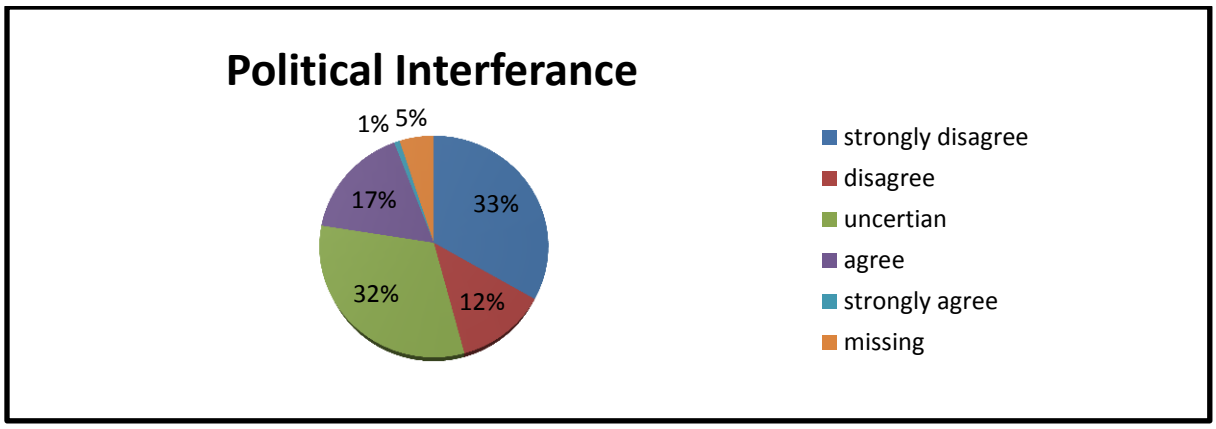


Figure 19: Political interference

The study found that, the majority of beneficiaries do not see political interference as a major challenge to the programme. This however does not imply that there is no interference when one lives in a democratic society politics are to the expected in all areas. The implication here is that the beneficiaries have not seen it thus do not rate it highly on their scale.

4.9 GOVERNMENT EXPECTATIONS

The Department of Agriculture had specific objectives when initiating and implementing the Masibuyele Emasimini programme; the first goal was to reduce hunger by increasing household food security. Secondly create jobs and lastly increase farm income and develop its beneficiaries (Masibuyele Emasimini programme 2011).

4.9.1 Ability to provide household with meals

This study hypothesised that food secured household could provide tree nutritious meals a day to every member of the household. Three meals a day is the accepted norm in terms of number of meals people were asked if they could at least meet this norm within the last month (Figure 20).

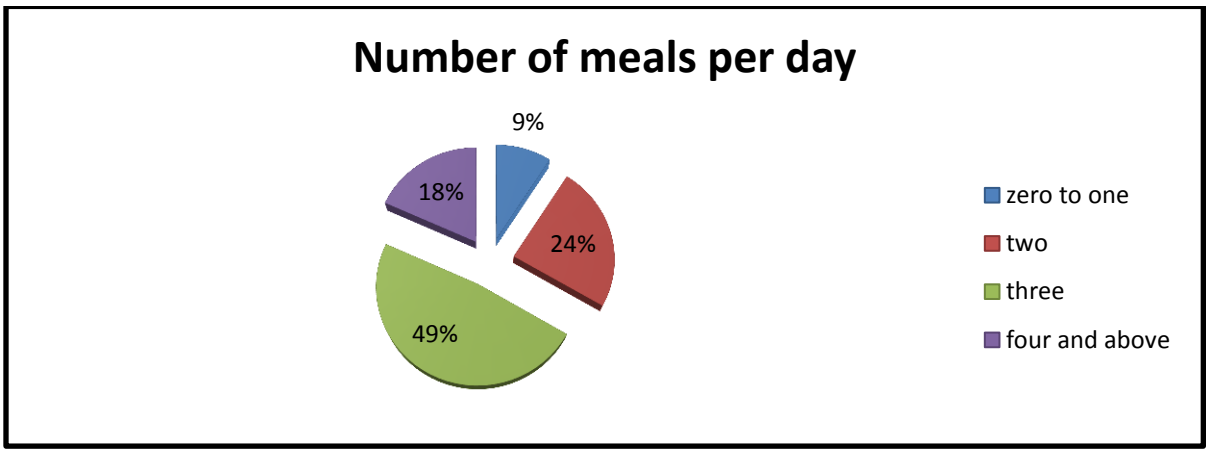


Figure 20: Number of meals per day

This questioned was posed to respondents, who indicated that most of them were indeed able to meet this provision, on aggregate 49 % could provide three meals and 18% could provide on a daily basis four or more meals clearly indicating that the majority of famers in the irrigation scheme are food secured. However there are those who could only meet two meals a day and sadly some reported zero to no meals a day. Figure 20, summarises the number of meals farmers reported having on a daily basis.

4.9.2 The influence of Masibuyele Emasimini on farm income

Food security is said to rise when access to food is increased one way of doing that is by increasing farm production, which allows them to have food to eat and make an income to afford other food choices, it also increase farmer income and the economy of rural areas (DFID 2004). Figure, 21, below summarizes farmer's responses towards the increase of farm income since the inception of the Masibuyele Emasimini programme.

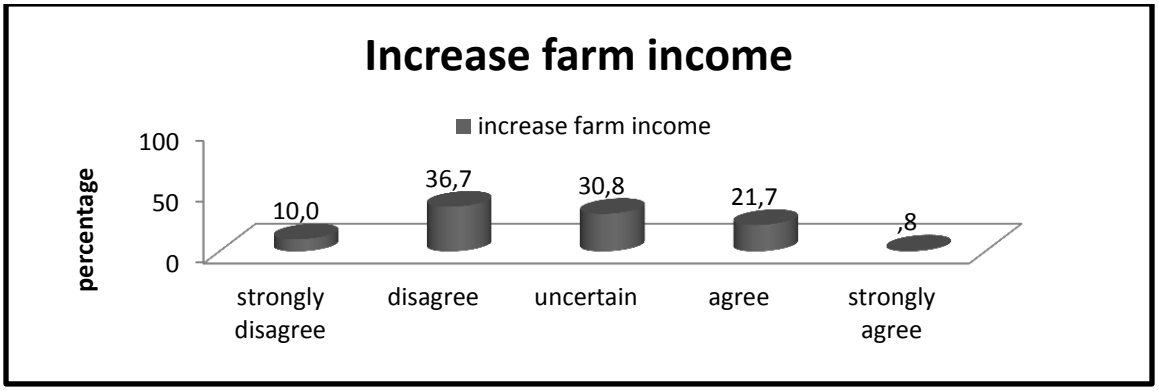


Figure21: Positive influence on farm income (increase)

Masibuyele Emasimini, programme increases farm income or not. From figure 18 one can clearly see that there is great uncertainty as into weather the programme increases income or not. The graph shows that 10% of the respondents strongly disagree and 36.7% disagree that the programme has resulted in an increase in farm income 30.8 % of farmers reported that they are uncertain if their income was affected by the inception of the programme while 21.7% agree that there has been an increase in farm income since the inception of the programme and only 0.8% strongly agree the results as the graph depicts are mostly skewed towards the negative with the majority of respondents been disagree followed by uncertain. One of the reasons why there is great uncertainty is because there is poor record keeping of income and expenditure from the farmers.

4.9.3 Influence of Masibuyele Emasimini successful in creating jobs

Ministry for Agriculture and Land Affairs (1998) recognises small holder farms as an important sector in employment creation stating that this sector provides jobs for over a million people in South Africa. Moreover it provides more than 25% of the jobs in the Limpopo province (Limpopo Department of Agriculture 2008).

In general, the agricultural sector contributes up to 7.2% of formal employment in South Africa (Baiphethi & Jacobs 2009).According to the Masibuyele Emasimini policy document (Masibuyele Emasimini, 2011), the programme has been able to create jobs; however the jobs created by the programme were the ones directly involved with implementing the programme, such as tractor drives. The drawback is the programme is successful should allow farmers to create employment themselves thus creating economic vitality skills development that is sustainable. Figure 22 summarises the findings on the programme ability to create jobs from the opinions of farmers.

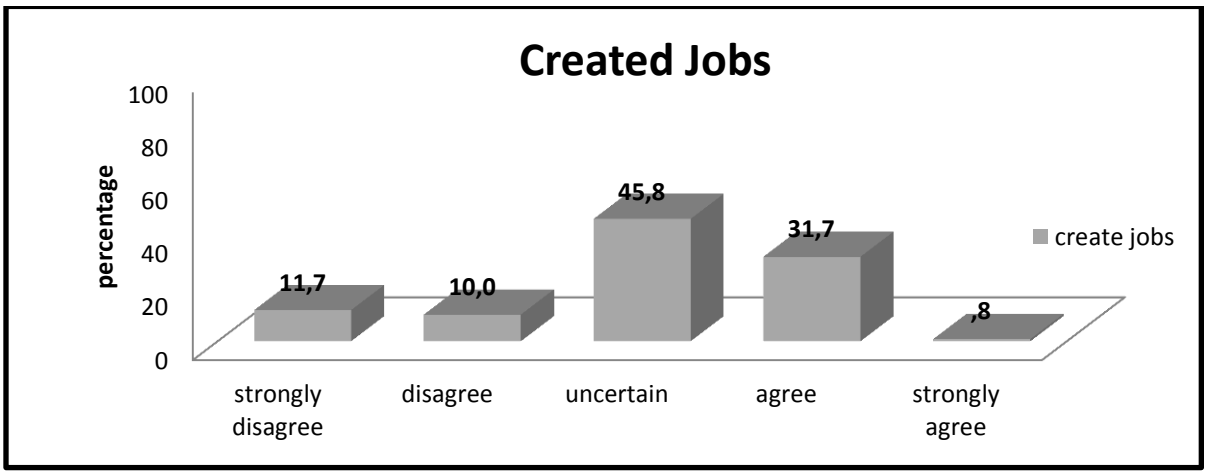


Figure22: Masibuyele Emasimini had an impact on job creation

Levinson (2011) states that agricultural programmes that increase production usually also increase farmer income while reducing the need for labour due to use of mechanization. Furthermore, for small-scale farmers the receiving of a production subsidy can create jobs by saving farmers money from production inputs and increases profits from higher production allowing farmers to hire much needed help.

The study's findings suggest that there is great uncertainty from beneficiaries on whether there has been any job creation which has been caused by the programme while in the other hand 31% reported that the programme has capacitated them to create jobs. Further probing of respondents revealed that respondents are uncertain if they can say jobs were created, since they hire seasonal workers and pay them in various means. Some indicated that they do not always hire people; it is only when they have the resources to pay them. Others ask family member for assistance and compensate them by giving them a bit of the harvest.

4.9.4 Masibuyele Emasimini Programme and Food Security in the Study Area

Food security does not have a definite measurement or a universal meaning; there is no precise accepted way to measure food security in South Africa. This is because of the numerous challenges that are evident in formulating a true one measure of food security. The difficulty is rooted in the nature of food security or insecurity, food security has multiple dimensions and can be periodical. Altman et al. (2009) states that, there is no one accepted measure of food security food security has multiple dimensions that are individually affected by other dimensions, it is

also very subjective and location dependent, what constitutes food difference from area to area. The nature of food security /insecurity allows it to occur periodically thus a food security or insecurity in not fixed.

It is for these reasons that this study probes the beneficiaries as into how they view their status. It is the insider; the person affected who can better state their condition than an observer standing outside looking in. Food security was interpreted to respondents as the ability of their households to on a daily basis meet their dietary needs to ensure a healthy and active life style by acquiring food in socially accepted ways. This means that beneficiaries are able to at least provide three meals for their families. Secondly they are able to produce a surplus yield that allows them to daily meet their nutritional requirements and have access to food. Figure, 23 summarises the opinions of beneficiaries on their food security status aided by the Masibuyele Emasimini programme.

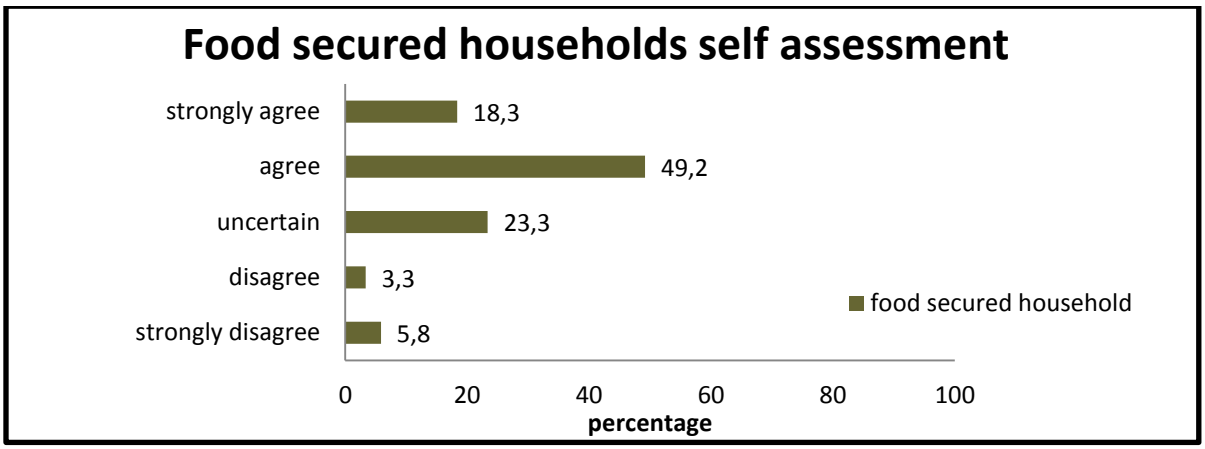


Figure 23: Masibuyele Emasimini Impact On Food Security

The results indicate positivity from beneficiaries that they are food secured. 49% of the respondents agree and a further 18% strongly agree that the programme has increased their food security while 23% are uncertain about the impact of the programme on their household food security, 6% disagree and 4% strongly disagree that the programme has had any positive impact towards food security of their households. This implies that at least according to the beneficiaries' responses that one of the objectives of government is being met.

4.9.5 The Programme Contribution to Develop Farmers

Greater food supply has been said to provide its producers with greater changes of increasing income (DFID 2004). The majority of the African rural participate in subsistence or smallholder agriculture, improving small holder agriculture its markets will directly improve the lives of the rural people (Machethe 2004). Figure, 24, summarises the opinions of farmers pertaining the contribution of the Masibuyele Emasimini programme towards their development.

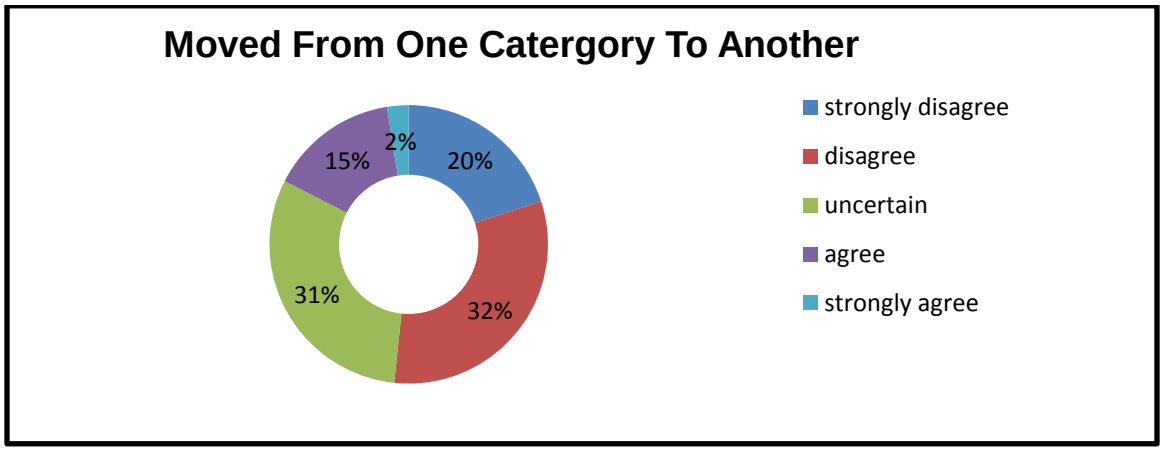


Figure 24: Masibuyele Emasimini influence on farmer growth

This question assess if the programme aimed at small-scale farmers has been able to increase their produce and profit in order to move them from one stage e.g. from small holder to be commercial farmer. 20% of the people strongly disagree and 32% disagree that there has been any social mobility as a result of the programme 31% of the respondents are uncertain if the programme had an influence on their social mobility.

Further probing of this uncertainty revealed that they have had advances in their social life but they are uncertain if they can pinpoint it to the assistance of the programme as some have had their children employed in other institutions during this period. Others have had deceased members of their families who left behind life insurance, even mine pay-outs, others have had children marry into better off spouses who then assisted them towards bettering their lives. 15% of the respondents agree that they have moved from one category to another.

4.10 SUPPORT FROM EXTENSION OFFICERS

Extension service are said to play an important role in providing advice and information for rural farmers. Training has been identified as fundamental in the development of rural farmers, new technology and fertilizers along with improvements in the varieties of seeds and agro chemicals. The frequency of visits and training from extension services is said to have a positive input on the productivity and food security status of rural farmers (Ayalew 2003). The opinions of farmers on the support received from extension officers, is summarized in Table: 11.

Table11: Farmer's opinions on extension support

	Support from Extension Officers		Training and Visit Adequate		Immediate Attention to Problems	
	n	%	n	%	n	%
Very Great Extent	1	0.8	0	0	2	1.7
Great Extent	2	1.7	6	5	2	1.7
Average Extent	10	8.4	10	8.3	9	7.5
Some Extent	15	12.5	5	4.2	9	7.5
Limited Extent	92	76.7	99	82.5	98	81.7
Total	120	100	120	100	120	100

The findings and explanations have been compartmentalized into three aspects namely 4.10.1 support from Extension Officers, 4.10.2 training and visit adequate and 4.9.3 immediate attention to problems.

4.10.1 Support from extension officers

Table 11, illustrates the amount of support responds received from Extension Officers according to them.76.7% said that the support they received from Extension Officers is very limited while 12.5 % said they have had support to some extent 8.4%indicated an average extent and only 1.7% a great extent. The results show great dissatisfaction with the support received from Extension Officers. This might explain the lack of skills depicted in the previous section.

4.10.2 Adequacy of Training Received from Extension Officers

Training is an essential part of the success of the Masibuyele Emasimini programme it informs the skills base of the beneficiaries and can change an ordinary farmer into a successful one (Axinn 1988). The Masibuyele Emasimini programme is an initiative driven by the Department of Agriculture and relies on Extension Officers under the employment of the same department to train farmers in necessary farming skills. Extension Advisors/Officers have been under the employment of the department decades prior to the initiation of this programme. They have been working with farmers for the duration of their careers. The study wanted to find out if these farmers believed that the training received from Extension Officers was adequate or not especially towards helping them be more productive in this program. The results show that most beneficiaries are unsatisfied with the training received from Extension Officer/Advisors and only 5% were actually satisfied

4.10.3 Immediate Attention to Problems

The majority of respondents (81.7%) indicated that extension officer's attention to problems was not immediate. While 7.5% said the immediate attention is readily available to some extent, 5.8% reported that it is only average and 1.7 % great extent 1.7% very great extent.

4.10.4 Requirements of Masibuyele Emasimini Policy Document

40% of the respondents strongly disagree further 18% disagree 37% are uncertain only 3% agree. The results indicate that respondents believe that Extension Officers do not follow concept document requirements. This kind of perception true or untrue can be detrimental to the relationship between farmers and extension officers. It can lead to great animosity from farmers who believe Extension Officers are not delivering and from Extension Officers who would in turn see farmers as ungrateful and a stumbling block to their careers. Table 12, summarises the findings.

Table 12: Followed requirements of policy document and had workshops with farmers

	Had Adequate Workshops With Farmers		**Followed The Requirement Of The Programme**	
	n	**%**	**n**	**%**
Strongly Agree	0	0	0	0
Agree	8	6.7	4	3.3

Uncertain	38	31.7	46	38.3
Disagree	35	29.2	22	18.3
Strongly Disagree	39	32.5	48	40
Total	120	100	120	100

4.10.5 Holding workshops with farmers

When asked if Extension Officers have held workshops with them as farmers 32.5% strongly disagreed while 29.2% disagree 30% were uncertain whether any workshops were held only 6.7% agree that workshops were held with them. The majority of respondents reported that no workshops have been held with them, by extension officers. This might explain the poor skills portrayed under the skills training section of this chapter.

4.10.6 Rating assistance from extension officers

Akpalu (2013) states that extension officers are the key bridges between research, government and farmers. For small enterprise and subsistence farmers they are often the key sources of knowledge on farming and new trends within the industry. Ideally extension officers would assist farmers by informing them of new technologies, methods and opportunities. They would also link farmers with existing markets; help farmers form partnerships and cooperatives and liaise with private sectors on behalf of farmers. Therefore extension officers are crucial role players in rural development. Their involvement is critical in the success of farmers.

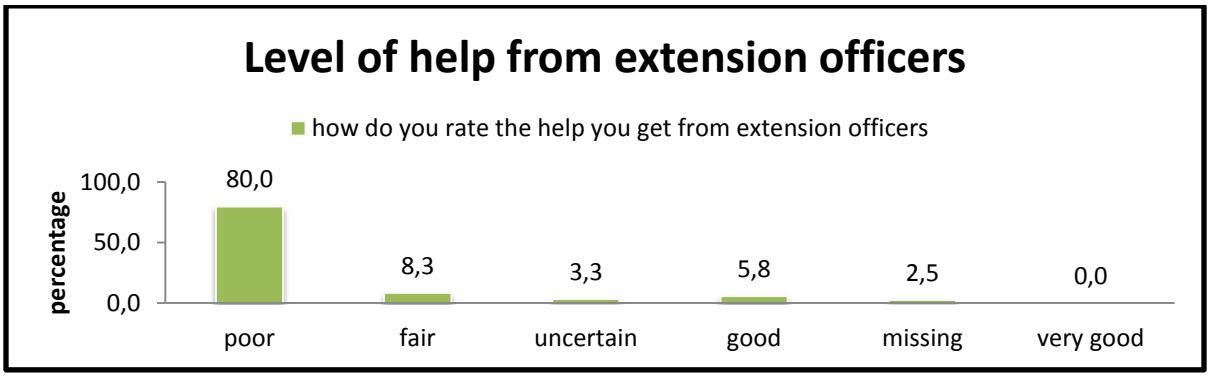


Figure 25: Beneficiaries rate of help from extension officers

Figure, 25 summarises the results from beneficiaries, when asked to rate the level of service they receive from extension officers. There was an overwhelming level of dissatisfaction with the

level of service they received from extension officer/advisors. As much as 80% of the respondents indicated that they get a poor level of service from extension officers while, 8.3% reported it to be fair, 3.3% were uncertain of the level of service and only 5.8% were satisfied with the level of service. The majority reported that the old Extension Officers used to come but the majority said within the past couple of years they did not see an extension officer in their farms. The lack of assistance from extension officers most likely hinders the success of the beneficiaries in farmers. As Akpalu (2013) has stated extension officers are a bridge they link small emerging farmers such as these beneficiaries to the skills and methods that will assist them in being successful farmers. The lack of assistance means that beneficiaries have limited knowledge on new methods of farming crop and pest management. They have to find their own markets and they have to struggle and use the traditional the knowledge they have.

4.10.7 Visitation from Extension Advisors/ officer

Farmer visitation is an important aspect of extension services as it allows farmers and Extension Advisors to interact on a personal level, secondly to see first-hand the needs and skills farmers have in order to equip them with relevant skills. It goes without saying that the more Extension Advisors frequent farmers the more assistance farmers will receive. Secondly problems and challenges can be addressed in their initial stages (Axinn 1988; Bindlish & Evenson 1997). Figure 26, depicts the frequency of visits from extension officers as reported by respondents.

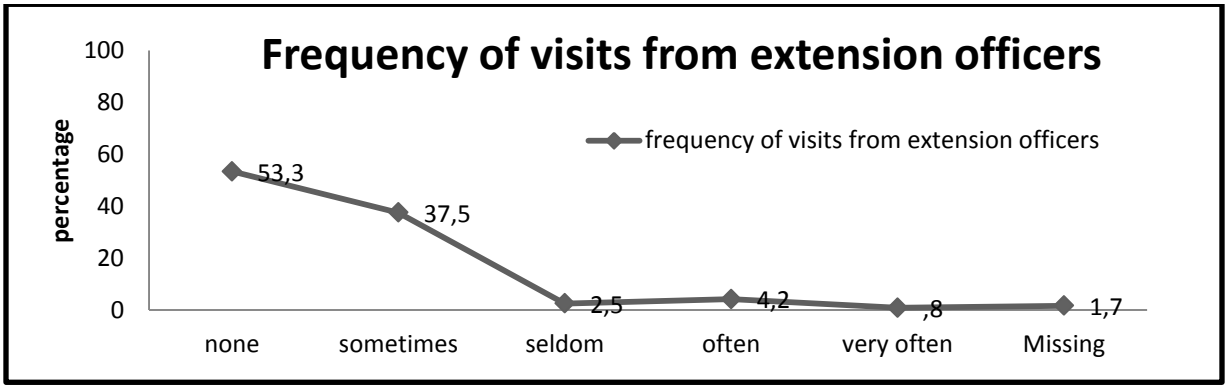


Figure 26: Frequency of visits from Extension Officers

The frequency of visitation has a close relationship to the level of service provided by extension officers. Very little service can be provided by extension officers if they do not visit farmers on the other hand the more they visit farmers the more they can assist. The results portray a

problematic picture over 50% of the beneficiaries indicated that they have had no visits from Extension Officers while, 37.5% that they sometimes get a visit from Extension Officers. Just 2.5% indicated that they seldom get visits from Extension Officers and only 4.2% indicated that they are often visited by Extension Officers and 0.8% indicated that Extension Officers visits are very often. Clearly indicating that, extension servicers play a role in the poor performance of beneficiaries.

4.11 IMPACT OF MASIBUYELEEMASIMINI TO BENEFICIARIES

4.11.1 Level of happiness with the programme

Satisfaction is an abstract concept (Your dictionary 2015). What satisfies one individual might not another. However the researcher chose to ask this question as it elicits a response where people justify their responses. It is these reasons they give that paint the challenges they have faced / are face from the Maibuyele Emasimini programme. A linkert scale with five levels of happiness was used. Beneficiaries rated their level of satisfaction with the closest description then they were asked to justify their choices. The opinions of farmers on their satisfaction with the programme is summarised in Figure 27.

Figure 27: Level of happiness with Masibuyele Emasimini

Most beneficiaries (47, 5%) indicated that that they are unsatisfied, while 4, 2% were very unsatisfied with the programme. The following reasons were given for lack of satisfaction: Unequal treated of farmers by the block leaders or committee members. Tractors are allocated to farmers of their favourite, or they plough their own land, that's where there is unequal number of hectares ploughed for each beneficiary.

Seeds and fertilizers are sometimes allocated to young farmers only, by extension officers, and indicate that he wants to encourage them to go back and till the land. Tractors are not available when required, planting time is affected. Seedlings dried –out while farmers waiting for tractors which one is not sure when it comes.

About 27, 5 % said they are fairly satisfied and about 20 % are happy with the programme. Their rationale was that despite the challenges they incur the programme has allowed them to grow as farmers. They can plant larger areas at lower costs, has provided them with free seeds and fertilizers where it could therefore they are grateful.

4.11.2 Improvement in yield

The development of small holder enterprises is said to be an effective strategy to stimulate economic growth and reduce poverty. Small holders usually produce in no more than two hectares of land however they constitute about 85% of the world farmers (Chand, Prasanna and Singh 2011. The problem is that majority of them lack the knowledge of mechanisms that would help them maximise income and production. Secondly, most smallholder farmers especially in developing countries lack access to training and education. The lack of these elements prevents them from achieving their true potential. Equipping smallholders with the said elements usually leads to more than double of their initial yields (Chand, et al 2011) Farmer's opinions' regarding the improvement in yield is summarised in Figure 28.

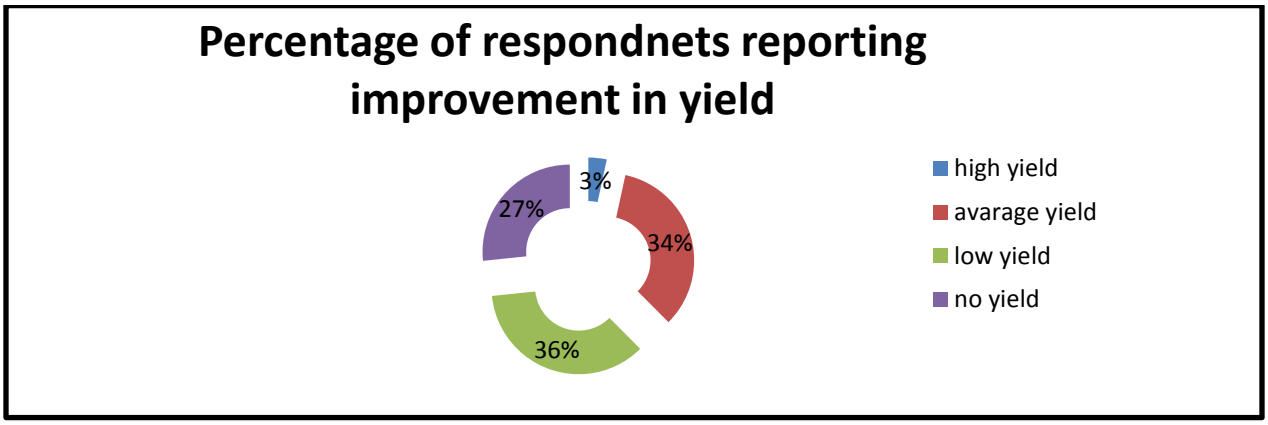


Figure 28: percentage of respondents reporting improvement in yield since initiation

Improvement in yield according to most beneficiaries is seasonal. Overall, for most beneficiaries the yield is average (34%) going on low (36%). Most of them said that the challenges they face

are some of the causes that have contributed towards getting an average to low yield. The biggest challenges inhibiting the attainment of higher yield according to respondents are; that they only receive mechanisation assistance in a portion of their farms. Secondly the production inputs such as seeds and fertilizers they received were inadequate; sometimes they do not receive them at all. Lastly poor tilling methods by tractor drivers led to soil compaction and erosion.

4.11.3 Whether farmers will continue with farming when government withdraw its services?

Chirwa et al. (2011) define independence or as they term it "graduation" as the departure from benefiting from food security programmes towards self-sufficiency without damaging ones lively hoods. In this study, 80% of the beneficiaries indicated that they will continue with farming even when the government withdraws its services (refer to Figure 29). They said farming is their way of life; they were farming even before the programme started. However, the majority indicated they will continue with farming in small quantities, others also indicated even now they have not been assisted by free tractors quite some time.

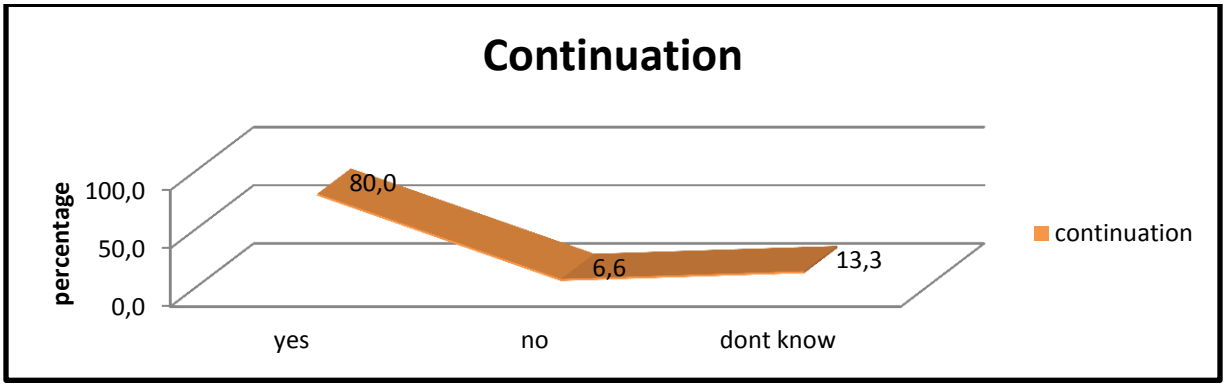


Figure 29: Continuation after withdrawal

Two aspects appear(can be deducted) from these findings, according to Chirwa et al,(2011) definition one reaches graduation if they are self-sufficient when benefits are withdrawn; which the results depicted in Figure 29, seem to suggest that majority of the beneficiaries will be able to do so. Chirwa et al. (2011) moreover state that this should not be at the expense of their current level of lively hood. Majority of the beneficiaries reported that their capacity would drop if the programme is to be removed at this stage.

4.11.4 What Level of service are beneficiaries receiving from service provider?

Here the researcher aimed at assessing the level of service received from the service provider (Figure 30) from the beneficiaries' point of view. The service provider was in charge of the rolling out of mechanization services and delivering inputs, while extension officers were responsible for their distribution.

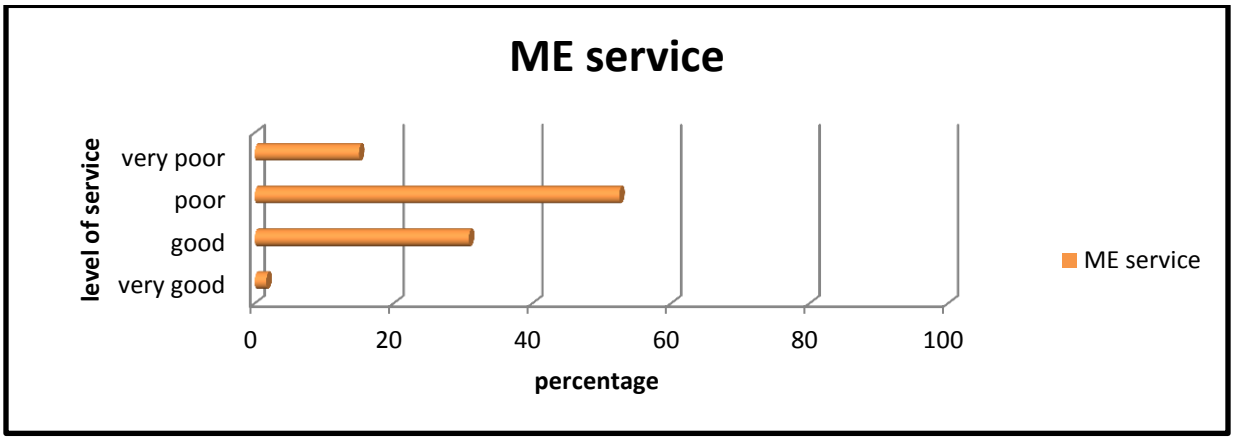


Figure30: Level of service from service provider

When asked to rate the programme Masibuyele Emasimini services, (52.5%) indicated (Figure 30) that the services are poor. The majority of beneficiaries are not happy about the services. When asked why they classified the service as poor, they said they don't get services when required. Sometimes they are told that there is no diesel and they have to wait for 4 months. Those who said the programme is good, indicated that it is the administration of the programme that is not running the programme well, but the programme itself is good and helpful.

4.11.5 Does the programme Improve beneficiaries socio economic life?

The study discussed the socio economic status of beneficiaries which showed that the majority of beneficiaries are poor unemployed elderly people with little education and dependents to feed. However, respondents were asked if the condition they are in has improved from before the programme started? More than half of them responded positively (53.3%) further elaborating by stating that their lives have improved since they have not paid anything for the intervention. The money they were supposed to pay for tractors they have used for other things at home. The other 44.2% indicated that they have not seen any improvement since they are still struggling to get money for children's education, they have no decent houses.

4.12 RECOMMENDATIONS FROM BENEFICIARIES

Recommendations helps pave a way forward on what needs to be changed. People centred opinions on a people centred program helps implement and recommend real solutions that can be applied on the crown solutions that speak to people's problems and frustration. The beneficiaries are the most affected by the programme this puts them in a position to mostly likely recommend solution that would work for them rather than a top down approach. Respondents were asked to recommend what they think should be changed within the programme. A series of questions were posed which were informed by a pilot study and related literature. Secondly the recommendation or rather the questions posed to the beneficiaries speak to the challenges which they identified.

4.12.1 Does the ME programme require alterations?

The majority (92.5%) of respondents believe that that the programme does need alterations. Such a high percent of respondents that believe that the programme needs alterations; indicates the level of dissatisfaction with the programme.

4.12.2 Who should be in charge of mechanization?

The issue of the regulation of mechanisation services have been in the spot light for a number of years. The control of mechanisation has changed hands a number of times since the inception of the programme. Mechanisation and its provision to farmers was firstly a responsibility of cooperatives due is unsatisfactory administration a service provider was appointed by the Department of Agriculture, rural development and land administration (Masibuyele Emasimini 2011).

Sadly, mechanisation is still under spotlight with reports of corruption poor service delivery and late arrival of production inputs. The study sought to find out what do the beneficiaries believe will be a solution to this problem, thus who should be in charge of mechanisation for the effective implementation of the Masibuyele Emasimini programme. Figure 31, summarises their responses.

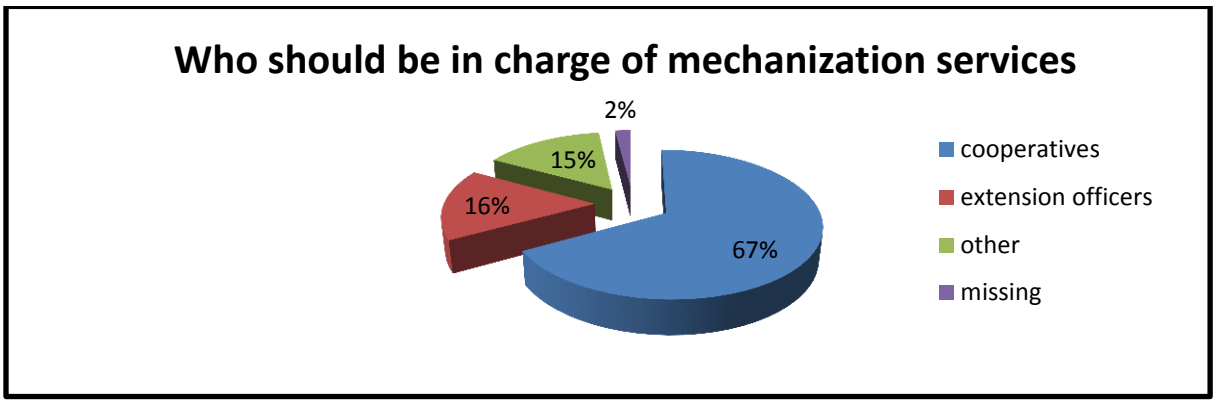


Figure 31: Who should be in charge of mechanization?

The study found that the majority (67%) of respondents believe that if cooperatives were in charge of mechanisation or programme implementation less of their current challenges would occur despite the initial failure identified by the Department of Agriculture to implement the programme. None of the respondents indicated that they would like the service provider or other farmers control or administering the tractors. The results show great confidence in cooperatives and also did the great in satisfaction beneficiaries of the programme by service providers with is the current way of running things

4.12.3 Who should benefit from Masibuyele Emasimini?

The Masibuyele Emasimini policy document identifies two types of farmers who are eligible to be assisted by the programme for free (Masibuyele Emasimini 2011). However, there is a lot of bickering concerning who is a small holder and who is a subsistence farmer due to the fact that the policy does not recommend that subsistence farmers be assisted with mechanisation in the form of tractors. This study posed the question to the participating beneficiaries and their opinions are reflected in Figure 32.

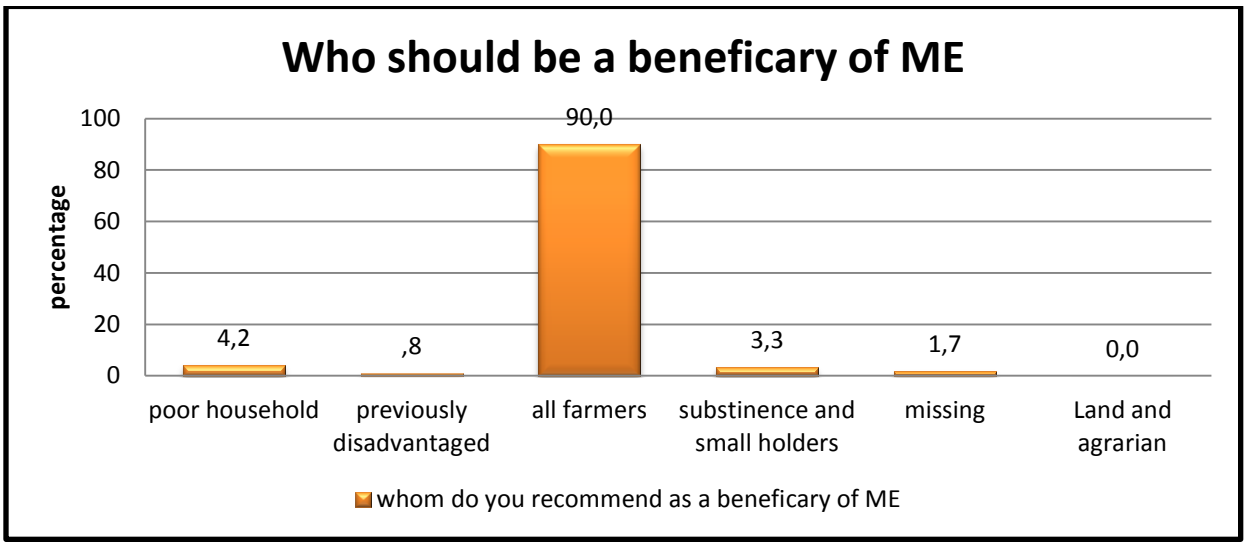


Figure32: Recommended types of beneficiaries

Ninety percent (90%) of the respondents believe that all farmers should benefit from the programme taking into consideration the social economic factors currently occurring in the area it should be noted that there is currently no commercial farmers operating in the area so this response is more tailored to their world of experience where subsistence and smallholder farmers are the norm, secondly there farmers indicated that there is corruption within the irrigation scheme leadership which led to questionable selection processes when benefits are to be obtained from the program.

4.13 THE RELATIONSHIP BETWEEN SKILLS TRAINING AND GOVERNMENT EXPECTATIONS?

To test as to whether there is a significant relationship between skills such as technical, marketing, financial, management, administration as well as support from the Extension Officers and government expectations, Pearson correlation was used. According to Strauss and Corbin (1998), correlation coefficient is a statistical measure of the degree to which changes to the value of one variable predict change to be value of another. The results of the coefficient can take upon a value between a coefficient of +1 which indicates a perfect positive correlation and a coefficient of -1 which indicates a perfect negative correlation where a change in the value of one variable predicts a change in the opposite direction.

The correlation coefficient for a sample is:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2]\,[n(\sum y^2) - (\sum y)^2]}}$$ …………………………………… (3)

Where:

Y= average score of government expectations per respondent

∑= summation

r= correlation coefficient

n= no of respondents / sample size

In order to establish whether there is a correlation between the levels of skills a beneficiary has and weather government expectation related to the programme were met; a scatter diagram was drawn out of the average skills and average government expectation responses of beneficiaries. Skills training was divided in to four components; Technical training, Marketing, Financial management and Management of the crops which each component having its own indicator, an aggregate value was computed per respondent by calculating the average score across all four components. This permitted for one average score per responded. The same procedure was done for government expectations. Government expectation has a number of components namely, job creation, income generation, food security and the upliftment of farmers; which were an average per responded across all indicators was established in order for comparisons to be established. The results of the correlation and scatter diagram are recorded in appendix 1 and its explanation is recorded below.

4.13.1 Explanation of correlation and Trend Line equation

The scatter diagram (Appendix A) was fitted with a line of best fit, better known as a trend line. A trend line estimates the best fit where the values are at mid-point, thus establishing the shortest distance, if one was to draw straight lines from the outlier values and the trend line. Its significance lies in its ability to provide us with a correlation coefficient denoted by (R) which can take the values between 1 and -1 such type of a correlation is termed a Pearson correlation coefficient.

The trend line like a straight line in geometry can be calculated with the general formula is:

Equation of a straight line $a = \bar{y} - b\bar{x}$ ………………………… (4)

y= a+bx....where: intercept:

Slope:

$$b = r\frac{s_y}{s_x} \quad \text{..... (5)}$$

The **slope** (b) of the line is the amount by which y increases when x increase by 1 unit.

The **intercept** (a), sometimes called the vertical intercept, is the height of the line when x = 0.

From the analysis of the correlation the trend line or line of best fit equation is Y= 0.432x+1.815

Therefore the height of the line is 1. 815 when x= 0 and y increases by 0.432 when x increases by 1.

There is a 38 % (r = 0.38) correlation between the average government expectations and the average skills training. This means skills training alone cannot meet the expectations of government from the Masibuyele Emasimini programme a combination of attributes are essential in order for government expectations to be met. The coefficient of determination r^2 is 0.145 which means only 14,5% government expectations can be explained by the level of skill a beneficiary has and vice versa (Stockburger, 1996).

R = 0.38(correlation is significant at a 0.01%level of significance)

The question addressed here is whether there is a relationship between beneficiary level of skills and meeting government expectations of the Masibuyele Emasimini programme which are; food security through farming, increased farm income due to benefiting from the Masibuyele Emasimini programme, job creation on farms and communities lastly the socio economic uplifting of subsistence and smallholder farmers benefiting from this programme. The results indicate that there is a very week relationship between the two and an increase in skills wouldn't alone contribute to meeting government expectation rather other aspects come into play.

4.14 GOVERNMENT EXPECTATION AND RELATIONS WITH LEVEL OF EDUCATION

Correlation analysis is used to determine the relationship between government expectations explained above (refer to 4.13) and the level of education. Instead of a scatter diagram the results of the correlation are recorded in table format here. The statistical tool for social sciences was used. Table 13 below summarises the results of the correlation.

Table 13: Relationship between government expectation (averaged) and level of education

Model Summary of the relationship between average government expectations and level of education				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.011[a]	.000121	-.008	.704287

In Table 13 above, the average of the government expectations was the dependent variable and the level of education was the independent variable, R squared=0.00121 and R= 0.011. There is a 0% correlation between the average of the government expectations and the level of education, which means that there is no relationship between the two variables. Whether or not the level of education of the beneficiaries is high or not; it does not have effect on the government expectations.

4.15 UNSTRUCTURED INTERVIEWS WITH EXTENSION OFFICERS

4.15.1 Introduction

Seven Extension Officers were interviewed about their perception on the Masibuyele Emasimini Programme, how it started, whether farmers were equipped with the necessary skills to sustain the programme, whether they think the programme managed to meet government expectations or not, challenges faced by both Extension Officers and farmers when implementing the programme and to check whether the programme has made an impact on the livelihood of the beneficiaries. Semi-structured interviews were used to collect data from these respondents, digital audio recording was used in initially capture the responses. The audio recordings were then transcribed, followed by coding into themes; then aggregating in to percentages and finally analysis.

The section has been structured according to the headings and themes explored with the beneficiaries to compare responses between beneficiaries and extension officers.

4.15.2 Inception

Extension Officers stated what the policy document indicated. The programme was started during 2005/2006 in the Mpumalanga Province. It was rolled out to different municipalities within different seasons. In Bushbuckridge it was piloted during the financial year 2007/2008 in

the New forest and Digleydale irrigation schemes. They were given 11 Tractors with implements. The number of hectares covered during the period was 1650 with 1200 households (Masibuyele Emasimini 2011-2015).

The programme was an initiative from the Mpumalanga cabinet, when it was realized that the people of Mpumalanga are living under poverty, meanwhile they have land in their disposal. According to the Masibuyele Emasimini concept document, there was no thorough preparation before the initiation of the program. Initially, when the tractors arrived at Bushbuckridge, they were given to cooperative of the two irrigation schemes, i.e., New forest and Digleydale, and then afterwards they were told that the government will hire a service provider to run the fleet. Farmers didn't have power on decision making since they were told what to do and not to do. They were also not involved in formulating the policy that will govern them. At some point New forest farmers were told that they have to share the tractors with dry land farmers around Bushbuckridge especially in summer because dry land farmers are waiting for the rain. When the tractors were done with dry land farmers, farmers at New forest were told that there is no diesel and they cannot be assisted.

During the interviews officers indicated different years of establishment of Masibuyele Emasimini. The two officers working under irrigation schemes indicated that the programme was rolled out to the scheme during the financial year 2007/8. It was piloted to the two irrigation schemes. The others from the same municipality started benefiting from the program during the financial year 2008/9. This is due to the different starting times between irrigation Farmers and dry land farmers.

4.15.3 Skills training

Two Extension Officers out of seven which is 28, 6% indicated that they are working hand in hand with the NGOs, and private companies to ensure that farmers are capacitated. The two Extension Officers are those working under irrigation scheme indicated that they work together with NGOS like LIMA, ARC, AGRI MPU and Grain South Africa in empowering the farmers. The other five out of seven which is 71.4% indicated that they relied on the training officer under the Department of Agriculture for training of farmers. They indicated that their work is to facilitate and coordinate the training and make sure information reaches the farmers.

According to the Extension Officers the following training was given to farmers in New forest Irrigation Scheme:

- Correct method of planting
- Crops cultivar
- Soil preparation,
- Weed control
- Pests and disease control.
- Application of fertilizers was also facilitated to the farmers to ensure sustainability of the programme

Other training said to be coordinated include: Project management, financial management and Marketing.

It is the impression of Extension Officers that the new forest irrigation scheme farmers have the skills to sustain the Masibuyele Emasimini programme; they indicated that the lack of practice of some crucial skills is more of ignorance of some farmers in other cases such as the application of organic fertilizers; it is the lack of motivation to do so.

All seven Extension Officers indicated that there was no specific training regarding the Masibuyele Emasimini programme that was given to them. Which portrays poor planning on the part of the department furthermore it allows for numerous interpretations by Extension Officers to occur. Extension Officers have limited accountability towards the programme.

There were also indications of the two Extension Officers from irrigation that more power was given to Masibuyele Emasimini committees they have little control over mechanization. Masibuyele Emasimini committees were established from villages to Municipal level. This has caused the Extension Officer to take a back role, in the implementation of the programme, especially when it comes to decision making; often committees run the distribution of benefits to beneficiaries.

5.15.4 Government expectations

According to the Extension Officers, generally no government expectations were met due to challenges the programme is facing. Four from the seven officers interviewed which is 57.1%

indicated that one of the government's objectives was to create jobs through hiring tractor drivers, site manager, tractor mechanics which they said it was successfully achieved, but no jobs were created on the side of farmers.

The programme failed to render the services as expected. 85% of the Extension Officers indicated that the abuse of power from those in power affected the outcome, most of the farmers in leadership position benefited more than other farmers. Such abuse of the system is caused by poor monitoring and the lack of a clear directive from top structures on the implementation of the programme. The government wanted to empower farmer committee by allowing for the establishment of Masibuyele Emasimini committees and the development of traditional and political leadership. Although the intention of government is justifiable the resultant of such action only led to great abuse of power for personal gain. Contrary to what beneficiaries indicated, Extension Officers see political interference as a hindrance to the success of the programme.

4.15.5 Challenges

Challenges mentioned by Extension Officer are as follows:

- Departmental budget constraints: 42.8% of Extension Officers highlighted that it seems the government doesn't have enough budget for the programme. Which is the bases for most of the challenges faced by the programme, such as limited production inputs, tractors not working due to lack of diesel; shortage of fuel due to the failure of government to pay the service provider result in tractors grounded because there is no diesel, moreover the lack of enough budgeting also speaks to the poor research, forward planning and forecasting by government. If research was done comprehensively it would have become apparent that the demand exceeds the supply to an enormous degree.
- It was a concern of all officers that the tractors used in the programme are not in good condition; secondly it takes quite an unacceptable amount of time for tractors to be repaired after broken.
- Limited mechanization is a challenge that was cited by 100% of Extension Officers since tractors are shared between dry land farmers and irrigation scheme. Farmers wait for long to be assisted by the mechanisation

- Extension Officers indicated that they have had encountered where tractor drivers were diverted from the daily implementation plan, to assist other people. Probing of the matter revealed that people bribe them which implying that those, cueing end up not receiving the services. 71.4% reported they have heard by other farmers that drivers are diverted to other farms because of bribery. The other 28, 6% Extension Officers indicated that the there is no issue of bribery in their working place
- Some of the land which beneficiaries plough on is not suitable for ploughing using tractors therefore cause tractors to breakdown. Some of the example is land that has too many rocks. All Extension Officers concurred that; they have had tractor breakdown because of land that was not properly de-bushed or have stones.
- Too many changes from concept document to policy. Only two (42.9%) out seven commented on the issue of changes in concept document, the others seems to have not realised the changes due to unknown reasons.
- All Extension Officers raised a serious concern regarding insufficient production inputs. This creates conflict amongst the beneficiaries themselves, because there are no clear criteria concerning who is supposed to benefit when inputs are no enough.
- Tractors travel long distances to where farmers land are, for ploughing thus waste of time and diesel.

4.15.6 Impact of Masibuyele Emasimini

Extension Officers said they currently have not witnessed any change due to the challenges the programme is having. The indication was that initially when the program started, it assisted many farmers and there was a positive impact. However, when farmers were starting to show considerable changes; the programmes challenges started to outweigh its benefits causing farmers to turn back to their initially state of farming. Seedlings dry out while farmers waiting for the tractors to plough and make furrows. Extension Officers like the beneficiaries believe that even if the programme is cancelled farmers will be able to continue farming nonetheless in a reduced capacity. Thus a reversal of all the efforts and growth derived from this programme thus the sustainability of the programme is questionable.

4.15.7 Job creation

28.6% Extension Advisors reported that the jobs created range from 1 to 4 per farmer. However, the officers also indicated that beneficiaries/farmers were having these numbers of workers even

before the programme started. Temporary workers were hired mostly during planting and weeding stage. The 71.4% officers indicated that dry-land farmers have not created any jobs; rather family members are the only labour source.

4.15.8 Support to beneficiaries by Extension Officers

All Extension Officers showed positive response when coming to supporting farmers. They said farmers were given full support through conducting mass meeting, visits and forming commodity groups.

4.16 RECOMMENDATIONS

These were recommendation for the Masibuyele Emasimini programme from extension officers:

- Government should increase the budget for the programme, because the demand for the services is high. The production inputs given to farmers are insufficient and cannot plant even a quarter of a hectare. Sometimes they are given maize seeds with mugs while the maximum area for ploughing is one hectare.
- More training should be done for farmers.
- Monitoring of the programme should be strengthened, So that tractors are not diverged
- Agricultural production inputs be bought and delivered in time. Tractors should be allocated to village.

4.17 OBSERVATION OF FARMERS' FIELDS AND MASIBUYELE EMASIMINI BENEFITS

4.17.1 Introduction

The implementation of the programme was observed by the researcher in order to gain first-hand knowledge about the project. Mechanization processes and input (seed and fertilizer) distribution in the irrigation scheme was observed, a series of photographs were taken and here used as visual and explanatory aid for better understanding of the visible aspects of the programme. The pilot study and literature review guided what should be focused on during observation, mechanization, seed and fertilizer distribution and farmer skills were among the aspects looked at.

Farmers' fields were visited by the researcher to see the visible production indicators, farming practices and tractors ploughing. During field visits, poor methods of soil preparation, lack of weed control, misuse of water during irrigation, nutrients deficiency in other crops as well as

fallow land were noticed. Above all, there was land that was properly ploughed and planted with a good sign of good yield .Some famers were very committed to their farming.

4.17.2 Mechanization

The land was ploughed as visible in Figure 33, without following contours. The tractor driver just drove and ploughed the ground without any regard for the contours, natural flow of water and existing layout of farm. In addition after ploughing more uneven places were created with even more ditches that will need to be levelled or they will be waterlogged. This is problematic because farmers spend years to get farms well-structured and manage slope contours to minimise runoff, secondly this lack of professionalism when ploughing causes more work for farmers who now need to fix the land.

Figure 33: ME tractor at work and the poor performance of the work

This problem is caused by the employment of tractor drivers who are not familiar with proper ploughing methods. This problem would have been easily avoided if training was provided by the service provider. The reality as observed by the researcher is that not only is the driver creating ridges he is making it difficult to control water flow in the farm.

4.17.3 Good and poor managed farms

i. Weeding

There are many definitions of weeds central to all of them is that weeds are plants which are out of plant and unintentionally sown. The main characteristic of a weed is that it is usually unwanted grows on its own and the bad aspects of it outweigh the good. Figure 34 depicts weeds growing around cabbages.

Figure 34: Poor crop management by ME beneficiaries with focus on weeding

The picture (Figure 34) clearly shows the poor weeding practices observed in on one of the beneficiary's field. The field was planted with cabbages in neat rows, but due to lack of proper maintenance weeds are starting to spread. This will lead to a competition between the plants and the weeds for nutrients and water; causing the poor development of the crops and at the end poor overall yield.

ii. Good crop management

Good crop management maximises the potential of crops and farms as a whole in producing maximum yield. Although not the only determent of good yield, it is certainly a factor. Figure 35 shows a beneficiary farmer who exercised good crop management.

Figure 35: Good performing farm

There were some farmers who were flourishing such as the image above depicting maize plants of one of the beneficiaries (her permission was sought to use this picture with her in it). These farms show great potential and were very well maintained. When interviewed they indicated that they are doing farming on their own, not waiting for ME programme, they said they were disappointed several times. Furthermore they stressed that farmers need to give their farms attention and take farming as a business and not just an activity for the jobless.

4.17.4 Organic fertilization

"Organic fertiliser is fertiliser that is derived from plant or animal matter" (The free dictionary 2015). The crop residue is ploughed back to the ground to increase soil quality and nutrients, which will in turn help the plantations, grow healthier and need less artificial fertilizers.

Figure 36: Crop residue ploughed back into the ground

Figure 36, shows a field ploughed with crop residue from previous season's plantation worked into the ground**.** This process helps restore soil fertility by recycling nutrients from plant residue. This practice uses already available resource to farmers (cop residue) as an organic fertilizer reducing the need to use huge quantities if artificial fertilizers and saving in terms of input costs. This practice shows a positive element to skills development by beneficiaries and good crop and farm management.

4.17.5 Seed and fertilizer distribution

Seeds and fertilizers are the main inputs along with mechanization offered by the programme. The researcher requested to observe when the distribution of inputs is conducted. Orinoco C has 141 beneficiary farmers which were given 25 x 25 kg bags of maize seeds, 9 x 25 kg bags of ground nuts and 13 x 25 kg bags of dried beans. Which were split between 141 beneficiaries each having an average of one hectare sized farms. The farmers in the scheme came together to share their allocation of seeds and fertilizers this is portrayed in Figure 37.

Figure 37: Beneficiaries sharing seeds and fertilizers

However, it was unfortunate to witness the very little in which every beneficiary gets allocated due to insufficient inputs. The beneficiaries ended up using cups to divide the different seeds per individual. This observation speaks to the shortages of supply versus demand of the inputs and raises the question whether the programme is of real consequence to its beneficiaries; if a person with more than a hectare of land is to be allocated only a cup of seeds and a plastic bag of fertilizers what significant difference can this make?

4.18 UNSTRUCTURED INTERVIEW FROM THE BENEFICIARIES

4.18.1 Introduction

Five farmers who benefited from the Masibuyele Emasimini were also interviewed. Unlike the other farmers, interviews were conducted in conversational or discursive style guided by open-ended and probes, and the audio-tape was used to record all the discussion. The data from the audio-tape were transcribed, labelled and then subjected to coding and organised in tentative categories relevant to the research questions. The results are given below.

4.18.2 Inception of the Programme

All the five farmers indicated that the programme started in the financial year 2007/8, with the aim of mobilising farmers back to tilling the land. 40% of the interviewed farmers indicated that

when the program started they were called by the Department of Agriculture because they were part of the management committee in the irrigation scheme. While the other 60% indicated the y heard about Masibuyele Emasimini programme from the committee members. All beneficiaries indicated that tractors were given to the cooperative of the two irrigation schemes, i.e., New forest and Digleydale They said that they were paying the tractors for any activities in an affordable rate.

4.18.3 Skills training

The 40% farmers from the management committee said that they have enough of the skills for agricultural production from the Department of Agriculture, LIMA.ARC and other companies. The other 60% farmers indicated that they have some of the training especially from LIMA. All farmers indicated that they have no training from Masibuyele Emasimini personnel, but they emphasised that they do have skills for production, i.e., planting spacing, pests and disease control, marketing etc.

4.18.4 Government Expectations

80% of the farmers mentioned that they don't think the government managed to meet their expectations, since they still have land that is lying fallow; many farmers still go out and hire private tractors because they have been queuing for long. They also indicated that the government tractors failed to plough 90% of the land in the scheme in a year. The other 20% said that they do get assisted by mechanisation two or three times a year, also indicated there is much improvement in production.

4.18.5 Challenges

All farmers indicated that they do have challenges one way or the other. The following challenges were commonly mentioned by all beneficiaries: insufficient inputs, shortage of diesel, poor communication, late arrival of production inputs and limited mechanisms. Only 10% indicated that bribery is challenge 20% indicated that lack of training by the tractor drivers is challenge. All beneficiaries have no problem with political interferes.

4.18.5.1 Poor Youth Involvement in the Programme and Farming in General

In-depth interviews with the beneficiaries revealed that there is a huge misconception of farming from the youth. They were of the view that farming is of poor status and is not a real career to be

part of. This is not surprising, since for majority of the youth in these villages, farming has been a compulsory activity enforced by parents so as to sustain the family. Most lack an example of farming that has turned people prosperous thus it is seen as an insignificant activity; which the poor and unsuccessful embark on. The sustainability of farming and thus of this programmes objectives are questionable if the youth is not taking part and majority of farmers are the elderly. PEA (2002) states that the lower the educational level of the youth the more they are likely to embrace farming as a means of lively hood and business. Conversely the more educated tend to seek employment in other sectors to avoid farming. Suriname (2010) adds on by stating that the youth usually go to the more popular and socially accepted by their communities as ideal forms of employment while stigma influences the youth against agriculture. The misconception of farming by the youth influences the sustainability of programmes objectives negatively

The fact that he elderly are participating in farming would be advantageous if they were doing so not only to provide for themselves and their families but also passing on vital skills which they have been equipped with from experience and training from programmes such as the Masibuyele Emasimini programme. However the findings paint a miserable picture where no skills transfer is occurring due to lack of interest from the youth. The implication of such a trend means that every new generation will need to be retrained which eludes towards the aim of the study; weather the Masibuyele Emasimini programmes its self and its goals are sustainable? By looking at this variable alone the findings suggest not. The lack of participation by the youth has negative implications for sustainability.

4.18.6 Impact of Masibuyele Emasimini to Beneficiaries

All beneficiaries indicated that for the first year of the program there was an increase in production and everyone was happy about the programme. All farmers dreamed to farm commercially but they said their dreams were turned down by many challenges that hindered the progress. 20% said they have still hope on the programme and the 80% said they are hopeless, secondly, that they have not hired people on their farm since the inception of Masibuyele Emasimini and the 20% said they managed to hire temporary workers for weeding and fertilisers application.

4.18.7 Support from Extension Officers

80% beneficiaries indicated that they have not received any support from the Extension Officers and the 20% indicated they have support from the extension officer through training and visits.

4.18.8 Recommendations from the Beneficiaries

Government should increase budgets for the programme. The Department of Agriculture should implement a proper monitoring and evaluation systems. Government should consult local Extension Officers when purchasing production inputs. It is recommended that training should be done to beneficiaries, tractor drivers and extension officers.

CHAPTER 5
SUMMARY AND SYNTHESIS

5.1 INTRODUCTION

The literature review gave the theoretical framework which guided the collection and analysis of the findings. The findings were presented in chapter four; this section aims at establishing the link between the theory/literature, the findings and a bridge between extension and beneficiary responses in order to give a holistic overview of the study from its theoretical foundation to its results.

Food security was defined as physical, social and economic access to sufficient, safe and nutritious food by all South African at all times to meet their dietary and food preferences for an active and healthy life. It was further operationalized as the ability of their households to on a daily basis meet their dietary needs to ensure a healthy and active life style by acquiring food in socially accepted ways. This means that beneficiaries are able to at least provide three meals for their families. Secondly they are able to produce a surplus yield that allows them to daily meet their nutritional requirements and have access to food even through the periods where they are not farming.

At household level, it also implies stability in access to food through sufficient food provisioning and or food purchasing power whatever the season of the year (FAO 2010.) This said in light of the findings presented in the previous chapter it is clear that not one factor plays a role in ensuring food security of households but a number of aspects interplay and interact to ensure sustainable food security of households. This study looked at mostly agricultural depended households and established how agricultural aid programmes in this case Masibuyele Emasimini has impacted on the households production, income and food security it further assessed the challenges faced by the programme in order to create an argument of whether the programme is sustainable or not.

The study results have shown that the stability of the households food supply is limited to sustenance level, the definition of a food secured household in relation to the literature suggest that a household should have enough purchasing power/ food provisioning to meet their dietary and food preferences for an active and healthy life.

The beneficiaries of the new forest irrigation scheme are able to produce enough food to meet their dietary needs they are however unable to meet their food preferences.

The most significant aspect of empirically and theoretically driven advancement of the concept of food security is the awareness that food security is no longer seen simply as a failure of agriculture to produce sufficient food at the national level, but the failure of livelihoods to guarantee access to sufficient food at the household level (Devereux & Maxwell 2000). The Masibuyele Emasimini programme aimed at intervening at the household level by assisting farmers with production inputs to poor and smallholder farmers an intervention indeed targeting the household to ensure food security. From the studies finding it became clear that Masibuyele Emasimini as a program has a great potential of ensuring food security and meeting its other objectives.

The problem, however, is that the challenges that it faces are hindering it from meeting its objectives. The farmers/beneficiaries have a dual situation that weakens the programme. Firstly the programme does not always deliver on its production inputs resulting in farmers not being sure if they will be able to plant that year; or delaying their mechanisation; in other instances where farmers will plough the land on their own, can lead the number of levies which they can plant on are limited. Secondly, when it does deliver on its mandate the farmers lack the skills necessary to excel in the programme furthermore, their crops as indicated in chapter four have no disease control thus are vulnerable to infections.

5.2 SYNTHESIS PER STUDY OBJECTIVE

5.2.1 The Socio-Economic Characteristics of Beneficiaries

Most of the beneficiaries were above 51 years. These are the elderly people who may be linked to reluctance and slower grasping of new skills, and show stubbornness to learn new skills.

The level of education with most been educated up to high school which includes high school dropouts can influence their ability to learn fast, bank, keep records and link with markets.

5.2.2 Inception into the Programme

Extension Officers reported that the programme started as a pilot programme to establish if the programme could work on the group. The new forest irrigation scheme was fortunate enough to

be selected for the pilot programme and has been benefiting ever since. All the respondents said they know of the Masibuyele Emasimini programme with the main source on initial knowledge of the programme being farmers meetings (43.3%) and committee member's announcements (45.8%). The majority have been beneficiaries of the programme for 4 years (99.2%) which in these four years they have mainly benefited from mechanisation and fertilizers (55.8%) followed by mechanization seeds and fertilizers (38.3). The nomination of beneficiaries largely rests upon elected committees (93.3%). 86.7% reported that they get assisted once per year with between 0-1 hectare (78.3%).

5.2.3 Challenges

At one stage or another about 96% of the respondents had experienced a challenge with the programme. The major challenges faced by the programme are poor communication in which 48.3% plus 6.7% indicated that it is a challenge, limited mechanization (64.2%); insufficient production input (31.7% + 27.5%); late arrival of seeds and fertilizer (45.8% +15.8%); inexperienced drivers (53.3%+ 10%) no meeting with service provider 37.5%. above these Extension Officers pinpointed some of the challenges faced by the programme such as, departmental budgetary constraints which can be linked to the limited mechanisation and insufficient production inputs identified by the beneficiaries; which are concerns reiterated by extension officers; Furthermore shortages of fuel which Extension Officers attribute to the failure of government to pay the service provider on time. Lastly, late arrival of seeds and fertilizers constitute the biggest challenges faced by the programme.

From this analysis of the challenges presented by both farmers and extension officers, it becomes apparent that there is a failure of government to deliver on time secondly that there is a mismatch between the demand and supply of inputs, two aspects play a role firstly budgetary constraints that might limit the availability of inputs and secondly insufficient budgeting due to miscalculated demands. The respondents identified poor communication as a challenge that affects the programme; beneficiaries are not informed of the lack of diesel until the moment they are support to benefit. One can deduce that there is poor monitoring of the effects of governmental delays and poor service delivery on the ground and lack of monitoring extends from local officials to provincial ones.

5.2.4 Skills Development and Extension Support

Skills development is a major aspect of empowering people; farmers in the South African rural areas have the land but lack the skills and resources to make a meaning difference out of it. The Masibuyele Emasimini programme provide the farmers with resources what is lagging behind are the skills, Extension Officers reported that farmers have been trained in various essential skills but farmers indicated that they have not been adequately trained and the little skills that have were provided by NGOs and not Extension Advisors. There is clearly a difference of perception or responses from the Extension Officers and beneficiaries. However, there is a consensus on the need for skills training and its importance for farmer development.

Extension Officers reported that farmers in the new forest irrigation scheme were skilled in the following skills: correct methods of planting, soil preparation, weed control, pest and disease control, application of fertilizers, marketing, financial management and project management. Beneficiaries responses showed that they were indeed capacitated in irrigation (40.8% agree +28.3% strongly agree), regular weeding (24.2% +27.5%), soil preparation with (55.8% +20%) planting depth and spacing also didn't fair too badly (35%+ 23.3%). In summary the respondents showed a positive result when it came to technical training and some aspects of the management of crops but lacked when it came to financial management, marketing and some aspects on the management of crops. Pest and disease control crop rotation and the application of organic fertilizers are poor among the beneficiaries

It is an understanding that more skilled farmers are more likely to thrive when assisted with programmes such as the Masibuyele Emasimini. The support from Extension Officers as indicated by beneficiaries in the new forest irrigation scheme is very poor and leaves a lot to be desired. The beneficiaries reported to having little to no training from extension officers, moreover it seems that Extension Officers do not attend to farmers problems with urgency. This however is in contrast to the responses of extension officers. When interviewed Extension Officers claimed that they have in fact trained farmers/ beneficiaries and are continually assisting farmers.

5.2.5 Government expectations

Feynes and Meyer (2003) indicated that smallholder agricultural production is critical towards achieving household food security through increased income and provide employment for the majority of the rural poor.

The study has indicated that the government had four main expectations namely to increase farm income, create jobs, improve farming of the beneficiaries by equipping them with skills and free mechanisation and ensure household food security. The expectations of government have partially been met, that is according to beneficiary's responses who indicated that they disagree that the programme increased their farm income 46.7%, only 21.75% indicated that the programme increased their farm income. On a positive side respondents indicated that the programme did in fact create jobs with 31.7% agreeing and 45.8% being uncertain. There is, however, poor performance of the programme, even the positive results are, in the end, on the spectrum. Majority of the respondents are food secured however their food security does not purely stem from agriculture.

Extension Officers said that the expectations of government were not met due to the many constraints facing the programme. It is clear that government expectations are lagging behind even after more than five years of the programme being implemented in the Mpumalanga province.

5.2.6 Recommendations from Beneficiaries and Extension Officers

The dissatisfaction with the current system of running the Masibuyele Emasimini programme has led to the researcher asking the question so what would beneficiaries and Extension Officers like to see happen? Key changes that beneficiaries would like to see occur are firstly that the control of mechanization be transferred to cooperatives (67%), secondly all farmers should benefit from the programme, this said with the background that biasness has been seen in terms of the section of beneficiaries in the New Forest Irrigation Scheme and the fact that the scheme only consist of sustenance and small holders farmers 90% of beneficiaries said all farmers shod benefit from the programme. Lastly beneficiaries believe that the programme should also provide disease control mechanisms and products to ensure the health of their produce and reduce the risk of loss.

Extension Officers proposed a number of recommendations mostly focuses on monitoring and safety mechanisms to and prevent the current challenges from hindering the success of the programme.

5.3 CONCLUDING REMARKS

The Masibuyele Emasimini programme as an agricultural intervention, to addressing hunger by increasing food security and increasing jobs by creating entrepreneurs, has indeed had an impact on its beneficiaries. The impact however is not to the level in which programme set out to achieve. As the study has shown that there are many challenges to this programme; of which they prevent the programme from effectively achieving its objectives. Among the many challenges it faces, insufficient production inputs (tractors, seeds and fertilizers) and the lack of disease control are the most inhibiting. Furthermore, the study showed that there is a shortage of essential skills required to achieve the goals of the programme; of the key missing skills marketing with a focus on the packaging and selling of the produce is of great lack.

The programme has equipped the beneficiaries with production inputs, which helps them produce more; since they do not have to spend on production inputs. However the programme failed to equip the beneficiaries with the necessary skills to sustain the programme. Those skills in which beneficiaries have, came from various other sources such as NGO,s; but even with these parties contribution the level of skills found in this study is still inadequate to create sustainable impact on the farmers.

The Department of Agriculture as the policy maker and implementer, assumed that its other programmes and mechanisms put in place for skills development would have delivered on this mandate however; although sad it is clear from the data that most of the beneficiaries were not equipped with the necessary skills to sustain the programmes objectives. The programme has also had a negative effect on the beneficiaries; it has created a dependency on the programme where even capacitated farmers wait for the intervention of the programme.

The negativity and shortage of skills discussed should not be mistaken for lack of progress from the programme and does not by any means overshadow its positives. The programmes beneficiaries as revealed in the study would like the programme to continue, despite its many

challenges the programme when inputs are available motivates them to farm, it attracts the youth to farming, reduces the cost of farming and creates a source of income for households.
The impact of the programme has been mixed, the programme has had its successes and also its challenges, it has reduce production cost of most of its beneficiaries by providing them with production inputs, secondly it has allowed most of the beneficiary farmers to farm in a larger extent than they used to before its inception.

It is clear that there is a need for a thorough look into the Masibuyele Emasimini programme, as the data clearly points out that there is great un-satisfaction with the current operations of the programme. The intension of the programme is indeed noble and based on a clear need. However problems aroused during implementation, this paper would argue that the problem occurred even prior to the implementation of the programme. The lack of comprehensive research and public participation on the part of government prior and after implementation; poor monitoring of the programme led to the hindrance of real change to occur.

With everything being said the aim of this study was to determine the sustainability of Masibuyele Emasimini Programme, as a strategy to reduce food insecurity in New Forest Irrigation Scheme. At this given point with the programmes successes and challenges discussed in this study; the programme is not sustainable due to its inability to capacitate farmers to a level of self-sufficiency and independence. Should the programme be scraped? Absolutely not, the problem faces challenges that need to be addresses and modification implemented.

5.4. RECOMMENDATIONS

5.4.1 Consultation and Research

The programme was implemented without thoroughly checking the skills that the farmers have, secondly without equipping them with these skills. The respondents as well as Extension Officers identified poor communication on different levels as one of the major challenges faced by the program. Government and other stake holders who are undertaking implementing a programme such as the Masibuyele Emasimini programme, to aid farmers should conduct thorough research with extensive consultation especially of those who are the targeted beneficiaries and those like Extension Officers who have been working with farmers for an extensive period of time. A one size fits all policy is not adequate. Challenges can be place, time

and even culturally manufactured thus inclusion of local stake holders in the policy drafting and also the implementation process is crucial. In the case of the Masibuyele Emasimini programme as it stands, consultation and research is still necessary so as to provide adequate amendments to the currently challenged programme.

5.4.2. Public participation

It is clear that poor public consultation played a large role in the challenges faced by the programme. The lack of public participation or beneficiary consultation on an on-going base led to the prolonging and exacerbation of problems. The public as the data has indicated have been beneficiaries for numerous years and have faced the problems throughout the years with the problems or challenges mounting with time. It goes without saying that the public in this case farmers will be the most detrimental factor towards the success of this programme thus they should be at the centre of the programme. One cannot initiate something to be implemented on someone else without first consulting that person moreover they should be involved them in decision making.

5.4.3. Monitoring

Following on participation, monitoring is necessary if the objectives of the programme are to be met. The programme has lacked proper monitoring to ensure that the correct beneficiaries in accordance to the criteria set out the programme are indeed benefiting. Secondly that the service provider is delivering the services on a satisfactory manner, further more to minimise corruption and abuse of the system.

5.3.4. Recommendations for Extension Officers

- Survey is crucial important for the adequate relevant analysis of beneficiaries and identification of their needs
- Ensure that tractor drivers do not divert from their prescribed working place to another area for unknown reason to minimise bribery and corruption.
- Ensure that skills training prior to and during implementation of the programme is done for the beneficiaries to perform up to the expected standard.
- To monitor the tractors from the stationed area, working and back to the station in order to keep the service provider in check and also to be accountable for the smooth running of the programme.

- Extension Officers should be diligent when delegating responsibility to village ME committees to ensure that these duties are carried out as instructed and no biasness or any other form of corruption is occurring. Regular meeting with these committees is crucial to monitor their progress curb bad behaviour from the beginning and ensure smooth running of the programme.

5.4.5. Recommendations for the Government

- Government should increase production mechanization; as the study has indicated that there are serious shortages in this regard. Secondly, due to the breakdown of these tractors, the government is recommended to invest in the highest quality of tractors so they can serve people for longer periods.
- Consultation with beneficiaries and Extension Officers of that area regarding production inputs, especially seeds. Farmers and Extension Officers working with these farmers have come to being experts over the years on the kind of varieties that are best suited for their areas they can better recommend varieties and fertilizers that would be beneficial to the local farming conditions.
- To ensure that monitoring and evaluation of the programme is done on a continuous basis this can be done by either hiring people or deploying Extension Officers who will work with the programme alone. This can minimize and ensure that bribery is under control.
- Training should be provided for both Extension Officers and beneficiaries to ensure sustainability of the project. The training should be specifically tailored to the programme. Monitoring of whether this training is occurring and what effect it's having is crucial.
- To arrange markets and connect beneficiaries to markets so that beneficiaries can sell their produce any time of year. The study have shown that the lack of markets and also the skills pertaining marketing is a major challenge faced by beneficiary farmers which is as detrimental as the lack of production inputs, arguably more so cause in can lead to massive losses, debt and depression.
- For effective change government needs to have a far reaching hand focused of those with the most dire of needs therefore the level of assisted should be extended to the poor and the vulnerable especially when coming to mechanization.

- To develop a measuring device that will help to measure the amount of diesel used in relation to number of hectare ploughed to minimise delays due to claims of diesel being finished.

5.4.6. Recommendations for Beneficiaries

- To ensure that crop are well managed starting from planting, weeding, application of fertilisers, pests and disease control, crop rotation should be practice for better production.
- Beneficiaries have been given a great opportunity and they should not take it lightly; it has the ability to change their lives and give them the push they needed to farm in a grander scale. They should be vocal and constantly indicate which training they require for better farm management in order to maximise the output from these programme.
- To take responsibility of what is given to them, not to divert tractors from the point of services. To report the abuse of resources and of delegated powers by committees or officials this programme is for them and they should start taking responsibility for it.
- Not to abuse the system by corrupting it, giving tractor drivers bribery meanwhile they know very well that the mechanization is free of charge.
- It's not only government and extension officer's responsibility to come up with ways to ensure the smooth running of the programme beneficiaries should work in conjunction with these parting.
- To develop a good relationship with Extension Officers and committees.

5.4.7. Recommendation for Service Provider

- To work together with Extension Officers, because the officers are the ones working directly with farmers.
- To attend to mechanization breakdown very quickly, so as to make service delivery more effective.
- To ensure that diesel is always available by forecasting and planning ahead.
- To claim exact amount for the hectares they have worked for.
- To notify Extension Officers of any challenges as soon as possible.

- To ensure that drivers are not drunk, when coming to work, when they are drunk they tend to plough haphazardly and become aggressive when call to order

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Map 1: Millennium Development Goals, 2010 page 6. Republic of South Africa showing the different provinces.

Map: 2. Bushbuckridge Local Municipality GIS Unit.

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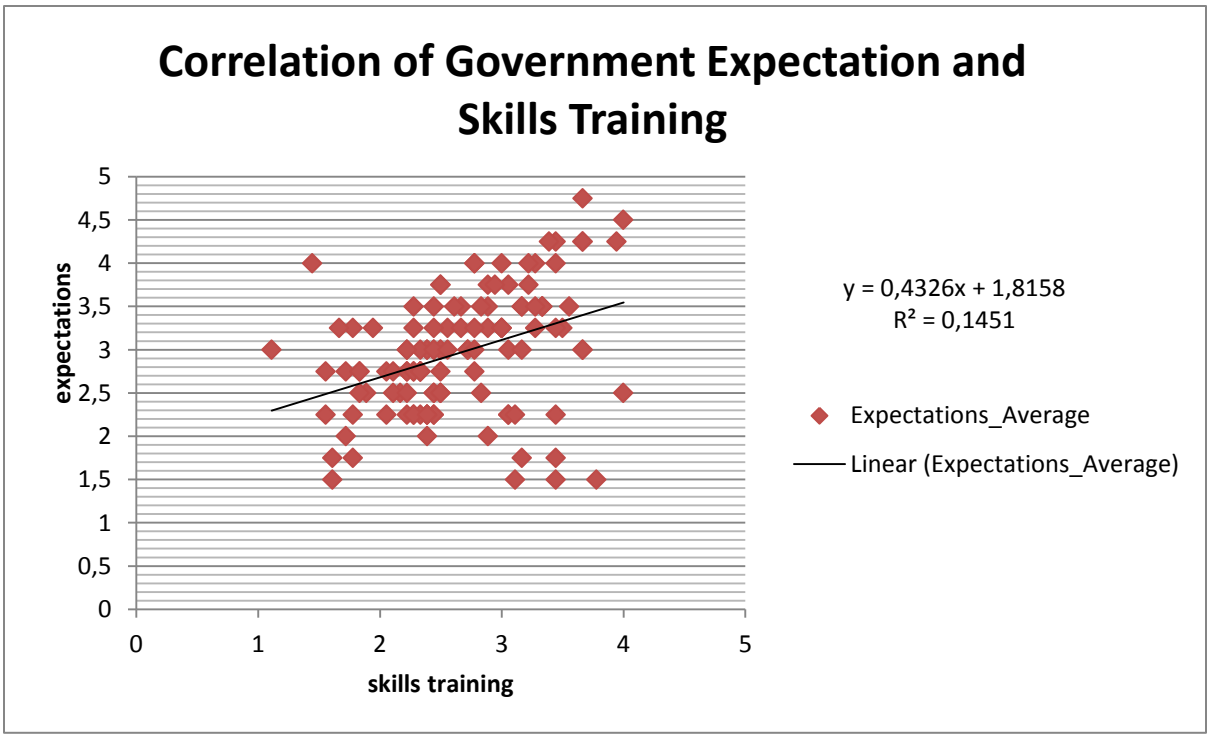
APPENDIX A: CORRELATION OF GOVERNMENT EXPECTATION AND SKILLS TRAINING



APPENDIX: B. FOOD SECURITY PER RESPONDENT

Responded number:	Crop Management	Technical Skills	Farm Income	Yield	Food Secure Perception	Mean/ Average
1	3.25	2.8	3	2	4	3.01
2	2.75	3	3	3	4	3.15
3	3.25	2.6	3	3	3	2.97
4	2.5	3.2	2	3	4	2.94
5	3	3.2	2	4	3	3.04
6	3.5	1	3	4	4	3.1
7	3.25	3.4	3	2	4	3.13
8	3.25	3.6	3	2	4	3.17
9	2.75	3.4	2	3	4	3.03
10	2.75	3.4	2	2	4	2.83
11	3.5	3.4	3	2	4	3.18
12	3.5	3.2	3	2	4	3.14
13	3	3.2	3	3	4	3.24
14	1	1	4	3	4	2.6
15	2.25	2.6	2	4	3	2.77
16	1.25	2.4	1	3	4	2.33

Responded number:	Crop Management	Technical Skills	Farm Income	Yield	Food Secure Perception	Mean/ Average
17	1	1	1	3	5	2.2
18	2.25	2.2	1	3	4	2.49
19	2.75	3.2	4	2	4	3.19
20	2.75	3	2	3	3	2.75
21	2.5	3.2	2	3	3	2.74
22	3.25	3.2	3	3	4	3.29
23	2.75	2.8	2	4	3	2.91
24	2.75	3.2	2	4	3	2.99
25	3.5	3.4	3	3	4	3.38
26	3.5	3.6	3	3	4	3.42
27	3.5	3.6	3	2	4	3.22
28	3	3.4	3	2	3	2.88
29	3.25	3	2	3	4	3.05
30	2.75	3.2	2	4	4	3.19
31	3	3	2	3	4	3
32	3.5	3.6	3	3	4	3.42
33	2.5	3.2	3	3	4	3.14
34	4	3.2	3	1	4	3.04
35	3.75	3.2	3	1	4	2.99
36	2.5	2.8	1	2	4	2.46
37	2.75	3.4	1	3	3	2.63
38	1.75	2.8	2	2	4	2.51
39	2	2	1	3	3	2.2
40	2.75	3.4	4	2	4	3.23
41	2	2.6	1	4	4	2.72
42	2	3.2	3	3	3	2.84
43	3	2.8	3	2	4	2.96
44	2.75	1	2	4	4	2.75
45	3.25	3.4	2	3	4	3.13
46	3.25	3	3	2	4	3.05
47	3	2.8	3	4	4	3.36
48	3.25	3	2	3	3	2.85
49	3	1	3	4	4	3
50	3.25	2.2	2	4	4	3.09
51	2.75	1.6	2	4	3	2.67
52	3	3.2	2	4	4	3.24
53	3	3	2	3	4	3
54	3.75	2.4	3	4	4	3.43
55	3.75	3	2	3	3	2.95
56	3	2.8	2	4	3	2.96

Responded number:	Crop Management	Technical Skills	Farm Income	Yield	Food Secure Perception	Mean/ Average
57	3.25	3.2	3	4	4	3.49
58	3	1	1	4	2	2.2
59	3.5	3	2	4	4	3.3
60	3.5	3.2	2	4	3	3.14
61	3.25	1.4	2	4	4	2.93
62	3.75	3.6	3	3	4	3.47
63	3	1.6	2	4	4	2.92
64	3.25	2.6	2	4	4	3.17
65	3	1.6	2	4	3	2.72
66	3	1	2	4	3	2.6
67	3.5	3.2	2	4	4	3.34
68	3.5	3.4	2	3	3	2.98
69	3	2.8	2	4	4	3.16
70	3.25	3.4	3	4	4	3.53
71	3	3	2	3	3	2.8
72	3	2.8	2	4	4	3.16
73	3.25	2.8	2	4	4	3.21
74	3	3	2	3	3	2.8
75	3	3.2	2	4	3	3.04
76	4	3.2	3	3	4	3.44
77	3.25	3	2	4	4	3.25
78	3.25	3	2	4	4	3.25
79	4	5	2	2	5	3.6
80	3	4	4	2	2	3
81	4	4.6	4	2	5	3.92
82	3.5	4.4	3	2	4	3.38
83	3.25	3.8	3	2	1	2.61
84	4	5	3	2	1	3
85	5	4.4	4	2	4	3.88
86	3.75	5	4	2	5	3.95
87	5	5	1	3	3	3.4
88	3.25	1	2	3	1	2.05
89	4	4.4	3	2	5	3.68
90	3.75	4.2	4	2	4	3.59
91	3.5	3.8	2	2	3	2.86
92	5	5	4	2	5	4.2
93	4	4.6	5	2	5	4.12
94	4.5	3.2	4	2	5	3.74
95	4.25	4.2	4	2	3	3.49
96	4.75	5	4	2	5	4.15

Responded number:	Crop Management	Technical Skills	Farm Income	Yield	Food Secure Perception	Mean/ Average
97	5	5	4	3	1	3.6
98	4.75	5	4	2	5	4.15
99	5	5	4	2	5	4.2
100	4.5	5	4	2	3	3.7
101	4	5	1	3	5	3.6
102	4.75	5	1	3	4	3.55
103	5	5	3	3	5	4.2
104	4	5	1	3	3	3.2
105	4	5	4	3	5	4.2
106	4.75	5	4	3	1	3.55
107	3.25	4.2	3	2	2	2.89
108	4	3.8	4	3	5	3.96
109	2.75	4	4	2	5	3.55
110	4.75	4.2	4	2	5	3.99
111	4.25	5	4	2	5	4.05
112	4	5	4	2	4	3.8
113	4	5	2	3	1	3
114	4.5	3	3	3	5	3.7
115	4	5	2	3	1	3
116	4	5	3	3	2	3.4
117	4.75	4	4	2	3	3.55
118	3.25	4.2	3	2	5	3.49
119	4.5	4	4	2	5	3.9
120	4.75	3.8	4	2	5	3.91

APPENDIX C: QUESTIONNAIRE FOR NEW FOREST IRRIGATION SCHEME FARMERS WHERE ME PROGRAMMEWAS PILOTED

University of Limpopo

Department of Agriculture

Questionnaire on: Evaluation of Masibuyele Emasimini program me with reference to food security at New forest Irrigation Scheme in Bushbuckridge municipality of Ehlanzeni District in Mpumalanga Province.

DEAR RESPONDENT

Good day; I am from the University of Limpopo Department of Agriculture. This research work is part of fulfilling the requirements for the award of a Masters Degree in Agricultural Extension. This questionnaire is therefore designed to collect information on New forest Irrigation scheme. The information will be used for research purposes only. Your contribution is very important to this study because it represents hundreds of others who are not part of the sample. I assure you of utmost confidentiality of all information provided.

Thank you

Shabangu Reginah (200911761)

INSTRUCTIONS: Kindly complete this questionnaire by ticking on the relevant answer.

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENT

1. Indicate age group

1. 21-25	2. 26-30	3. 31-40	4. 41-50	5. Above 51

2. Gender

1.Male	2. Female

3. Farming experience of household/farm

1.< 5 years	2. 5-10 years	3. 11-20 years	4. 21-30 years	5.> 30 years

4. How many people are in your household?

1. 1-3	2. 4-6	3. 7-10	4.above 10

5. Please indicate your highest educational qualification

1.Primary school	2.High school	3.Tertiary	4.No formal education

6. Please indicate your occupation

1.Employed	2.Self employed	3.Unemployed	4.Other

SECTION B- INCEPTION OF THE PROGRAM ME

1. Do you know of Masibuyele Emasimini?

1.Yes	2.No

2. If yes where did you hear it from?

1.Friend	2.Media	3.Extension Officer	4.Farmers Meeting	5.Other

3. Are you a beneficiary?

1.Yes	2.No

4. If yes, how long have you been a beneficiary?

1.one year	2. two years	3. three years	4. above three years

5. Who nominated you to be a beneficiary of Masibuyele Emasimini?

1.Extension Officer	2.Committee	3.Councillor	4.Service Provider	5.Other

6. What does the program assist you with?

7. How frequent do you get assisted with Masibuyele Emasimini programme?

1.Once Per Month	2.OncePer Quarter	3.Once Per Year	4.When I Need Help	5.Other

8. How many hectares do you get assisted with?

1. 0.5-1	2. 2-3	3. 4-5	4. more than 5	5. other

SECTION C: SKILLS TRAINING

1. To what extent do you agree with the statements below on skills training? Respond by circling the answer that best fits your response. Choose only one answer per item. 5. Strongly agree = SA, 4.Agree = A, 3. Uncertain = U, 2.Disagree = D, 1.Strongly Disagree = SD

2. Technical training

a. Soil preparation	5.SA	4.A	3.U	2.D	1.SD
b. Planting depth and spacing	5.SA	4.A	3.U	2.D	1.SD
c. Irrigation schedule	5.SA	4.A	3.U	2.D	1.SD
d. Pests and disease control	5.SA	4.A	3.U	2.D	1.SD
e. Fertilizer application and types	5.SA	4.A	3.U	2.D	1.SD

3. Marketing

a. the selling of your crops	5.SA	4.A	3.U	2.D	1.SD
b. Grading	5.SA	4.A	3.U	2.D	1.SD
c. Packaging	5.SA	4.A	3.U	2.D	1.SD
d. Had a contract with the market	5.SA	4.A	3.U	2.D	1.SD
e. Had a supply and sell consistency	5.SA	4.A	3.U	2.D	1.SD
f. Had a cooperative	5.SA	4.A	3.U	2.D	1.SD

3.1 Circle the number that indicates market for your crops.

1. Local supermarket, 2. School Nutrition programme, 3.Hawkers, 4.Local Community, 5.never sold, and 6.Other (Specify) _____.

4. Financial management

a. Kept expenditure and income records 5.SA 4.A 3.U 2.D 1.SD

of the money accrued for sales

b. Money accrued from sales banked 5.SA 4.A 3.U 2.D 1.SD

5. Management of the crops

a. Regular weeding 5.SA 4.A 3.U 2.D 1.SD
b. Irrigation 5.SA 4.A 3.U 2.D 1.SD
c. Crop rotation 5.SA 4.A 3.U 2.D 1.SD
d. Apply organic fertilizers 5.SA 4.A 3.U 2.D 1.SD

SECTION D: GOVERNMENT EXPECTATIONS

1. Do you know the objective of the Masibuyele Emasimini programme?

1.Yes	2.No

If no

why_____

2. Indicate how many meals you have a day

1. one	2. two	3. three	4. Above three

3. Indicate the extent to which you agree with the statements below with regard to the extent to which government expectations were met. Respond by circling the answer that best fits your response.

5. Strongly agree=SA, 4.Agree=A, 3. Uncertain=U, 2. Disagree=D, 1. Strongly Disagree

a. Increased farm income through crop sales 5.SA 4.A 3.U 2.D 1.SD

b. Created jobs 5.SA 4.A 3.U 2.D 1.SD

c. Ensure food security at household level 5.SA 4.A 3.U 2.D 1.SD

d. Moved from one category to another 5.SA 4.A 3.U 2.D 1.SD

SECTION E: CHALLEGES OF MASIBUYELE EMASIMINIPROGRAM

1. Do you have challenges with Masibuyele Emasimini programme?

1.Yes	2.No

2. If yes

1. Indicate the extent to which you agree with the statements below with regard to the challenges of Masibuyele Emasimini. Respond by circling the answer that best fits your response.

5. Strongly agree=SA, 4.Agree=A, 3. Uncertain=U, 2. Disagree=D, 1. Strongly Disagree

a. Poor communication 5.SA 4.A 3.U 2.D 1.SD

b. Limited mechanization 5.SA 4.A 3.U 2.D 1.SD

c. Inexperience tractor drivers 5.SA 4.A 3.U 2.D 1.SD

d. Political interference 5.SA 4.A 3.U 2.D 1.SD

e. Late arrival of seeds and fertilizers 5.SA 4.A 3.U 2.D 1.SD

f. Insufficient production inputs 5.SA 4.A 3.U 2.D 1.SD

g. Limited control of tractors by officers and Committees 5 .SA 4.A 3.U 2.D 1.SD

h. Drivers taking bribes 5.SA 4.A 3.U 2.D 1.SD

i. No meeting with service provider 5.SA 4.A 3.U 2.D 1.SD

SECTION F: EFFECT OF MASIBUYELE EMASIMINI TO BENEFICIARIES

1. How do you rate the basic services of Masibuyele Emasimini?

1.Very Good	2. Good	3. Poor	4. Very Poor	5. Other

Give reasons to support your answer_____

_____

2. Do you think the provision of Masibuyele Emasimini intervention has improved your social and economic life?

1.Yes	2.No	3. Don't know

Please justify your answer----------

---

3. Do you think you will be able to continue with farming when the government withdraws?

1.Yes	2.No	3. Don't know

Please justify your answer----------

---

4. Rate your level of happiness with Masibuyele Emasimini programme?

1. Very Happy	2. Happy	3. Fair	4. Unhappy	5. Very Unhappy

5. Has there been any improvement in yield since the inception of the programme?

0. no	1. yes

6. How would you best describe the yield you received with the aid of Masibuyele Emasimini?

1. High Yield	2.Average Yield	3.Low Yield	4. No Yield	5. Other

SECTION G: RECOMMENDATIONS

1. Does the program require some alterations?

1.Yes	2.No	3.Don't know

If yes, what can be altered to improve the program Masibuyele Emasimini? _____

2. Whom do you recommend to be beneficiaries of Masibuyele Emasimini Programme?

1.Poor households	2.Previously disadvantage	3.All farmers	4.subsistence and small holders	5. Land and agrarian

3. Who should be in charge of mechanization and production inputs?

1.Farmers	2.Cooperatives	3.Extension officers	4.Service provider	6.other/specify_____

4. Any other comments or view you want to bring to the attention of the researcher?

_____

_____

SECTION H: SUPPORT FROM EXTENSION OFFICER

1. To what extent do you agree with the following statements concerning the support that you received from the extension officers? Respond by circling the answer that best fits your response.

   5. Very Great Extent = VGE, 4.Great Extent = GE, 3.Average Extent = AE, 2.Some Extent = SE 1.Limited extent = LE.

a. Training received is adequate to produce for market 5. VGE. 4. GE. 3. AE. 2. SE, 1.LE.
b. The level of support from the extension officers impacted positively on the effective and efficient running of the program. 5. VGE. 4. GE. 3. AE. 2. SE, 1.LE.
c. Immediate attention to problems on implementation of the program.
   5. VGE. 4. GE. 3. AE. 2. SE, 1.LE

2. How do you rate the help that you get from the extension officers?
   5. Very good 4. Good 3. Uncertain2. Fair1. Poor
3. Describe the frequency of visits that you had from the officers.
   5. Very often. 4**.** Often. 3. Seldom 2**.** Sometimes. 1. None
4. Indicate the extent to which you agree with the statements concerning the information on implementation of the program below. Respond by circling the answer that best fits your Response. 5. Strongly agree = SA, 4.Agree = A, 3.Uncertain = U, 2.Disagree = D, 1.Strongly Disagree = SD.

a. Had workshop with farmers.	5. SA 4.A 3.U2D 1. SD
b. Trained and visited the farmers	5. SA 4.A 3. U2D 1. SD
c. Followed the requirements from the documents	5. SA4. A3.U 2D 1. SD

Thank you for your time

APPENDIX D: UNSTRUCTURED INTERVIEW GUIDE FOR BOTH EXTENSION OFFICERS AND FARMERS

Introduction of interviewer:

Good day; I am from the University of Limpopo Department of Agriculture. This research work is part of fulfilling the requirements for the award of a Master's Degree in Agricultural Extension. This interview is therefore designed to collect information on MasibuyeleEmasimini programme. The information will be used for research purposes only. Your contribution is very important to this study because it represents hundreds of others who are not part of the sample. I assure you of utmost confidentiality of all information provided.

Thank you

Shabangu Reginah (200911761).

During interview I would like to discuss the following topic: Evaluation of Masibuyele Emasimini programme with the topics in mind:

1. Inception of the programme.
    - When did the program start and what was its aim?
    - How did the programme started?
2. Skills training.
    - What kind of training did the farmers and extension received about the programme ME?
3. Government expectation.
    - According to your perception, did the programme managed to meet government expectation?
4. Challenges of MasibuyeleEmasimini.
    - What challenges do you meet when implementing this program?
    - Do you think the people nominated receive proper assistance by the program, if not what are the hindrances?

. 5. Impact of MasibuyeleEmasimini to beneficiaries

    - Do you see any noticeable changes in the lives of beneficiaries?
    - How many people were employed by farmers since the program started? (Approximate number of workers per farmer)

6. Support to beneficiaries

- What kind of support given to beneficiaries and from whom?
- What role do extension officers, service provider and ME committees play during implementation of the programme?.

7. Recommendations

- What can be done to improve MasibuyeleEmasimini programme?

Conclusion of interview

- Do you want to add anything on MasibuyeleEmasimini programme?

THANK YOU FOR YOUR TIME