WOMEN PERCEIVED DETERMINANTS OF HOUSEHOLD FOOD SECURITY: A CASE STUDY OF MWALA SUB-COUNTY, MACHAKOS COUNTY KENYA

By:

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This Dissertation is submitted in partial fulfillment of the requirements for the award of a Masters in Developmental Studies (MDS) from St. Paul's university

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DECLARATION

This dissertation is as a product of my own work and is not the result of anything done in collaboration. It has not been previously presented to any other institution. I agree that this dissertation may be available for reference and photocopying at the discretion of the university.

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I confirm that the research work reported in this dissertation has been done by the student under my / our supervision.

NAME OF SUPERVISOR _____

SIGNATURE OF SUPERVISOR_____ DATE_____

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May the God our Lord reward all of you abundantly.

ABBREVIATIONS AND ACRONYMS

ASALs	:	Arid and Semi-Arid Lands
CDF	:	Constituency Development Fund
FAO	:	Food and Agriculture Organization
GDP	:	Gross Domestic Product
GOK	:	Government of Kenya
KNBS	:	Kenya National Bureau of Standards
MDGs	:	Millennium Development Goals
NGOs	:	Non Governmental Organizations
SMEs	:	Small, Medium Enterprises
SPSS	:	Statistical Package for social sciences
SSA	:	Sub Sahara Africa
UNESCO	:	United Nations Educational, Scientific and Cultural Organization.
UNIDO	:	United Nations Industrial Development Organization
USAID	:	United States Agency for International Development

ABSTRACT

Women in most rural communities in Africa dominate farming activities in labour supply and management. Overall, Africa's performance in agricultural production and productivity remains inadequate and the region has failed to make progress in food security (Republic of Kenya, 2002). Mwala Sub County in Machakos County is one of the areas characterized as food insecure. Majority of locals depend largely on agricultural production for their food security. (Ministry of Agriculture, 2011). However, in the last two decades food production among many households has been declining due to unreliable rainfall, inadequate agricultural production skills and land ownership rights amongst women who are the key players in food production in the area (GoK, 2010). Due to this decline, majority of households are depending largely on rationed food relief from government agencies. A study conducted by Mbiuki (2014) shows that due to high food insecurity witnessed in Mwala, it has become hard for the women to invest in other beneficial ventures but spend a huge amount on food items. The study set out to analyze the impact of the women related determinants on household food security in such include effects of rainfall on household food security, impact of women agricultural production skills on household food security and the impact of women land ownership rights and access on household food security in Mwala sub-county, Machakos County, Kenya. The research used descriptive design where a simple random sample of 100 respondents was used to represent women in the sub county. Data was collected using questionnaire, key informants interviews. The results of this study show that women have no title deeds or allotment numbers to the land they operate hence they are unable to access credit to scale up their farming ventures. They have low education levels and only few women have received training on better agricultural production systems which has reduced their productivity. The government has tried to offer them training on improved farming methods and techniques but this has only reached few women in the area. To improve household food security this study recommends that as regards the women, women property rights need to be improved coupled with improved production systems like provision of irrigation water and access to certified seeds and fertlizers. There is also need to train women on modern farming methods to increase their resilience to climate change variability. Therefore there is need to intensify informal training /adult education

and funding opportunities that target women in the sub county to enhance household food security.

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CHAPTER ONE

1.0. INTRODUCTION

1.1. Background Information

Women in most rural communities in Africa dominate farm activities in terms of labour supply and management. Overall, Africa's performance in agricultural production and productivity remain inadequate and the region has failed to make progress in food security (Bancy, 2000). The World Summit of 1996 defined food security as existing when all people at all times have physical or economic access to sufficient and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, 2011).

Although African women are disproportionately responsible for providing food to their families, they have disproportionate access to, and control of agricultural assets and inputs than men (Kinyua, 2009). According FAO (2011), women carry most of the burden for housework and childcare. Increasing women's access to land, livestock, education, financial services, extension, technology and rural employment would boost their productivity and generate gains in agricultural output, food security, economic growth and social welfare (FAO, 2011). Women's rights to land and property are systematically denied (Mbiuki, 2014).

Discriminatory attitudes and practices undermine them. This leaves many women almost entirely dependent on the men in their lives for basic economic survival and security, wellbeing, and food security, particularly if widowed, divorced, single, or in marriages not formally recognized (Schorling, 2006). The Kenya constitution Chapter Four on the Bill of Rights enshrines human rights and gender provisions that guarantees allocation and land inheritance to all (GOK, 2010). This would help women to access land ownership and increase food production but legal policies have to be enacted to make this a reality. Although, Sen (1999) noted that securing rights to land for women would help moderate the impact of food price volatility and other shocks of food insecurity.

Food insecurity is an alarming issue in many parts of Kenya (FAO, 2011). Over the decades, numerous fora have been convened at various levels to discuss what needs and should be done to reverse such a state of food insecurity in the country. It is apparent that food security issues cannot be addressed in isolation from other factors for as Kinyua (2009) argues, many factors influence the form and impact of food security issues; this suggests that in addressing food security issues, there is a need to look beyond simply ensuring that people have enough to eat for the day, week or month. Growing seasons are changing, ecological niches are shifting, and rainfall has become more unpredictable and unreliable both in its timing and its volume (Kinyua, 2009). This has led to greater uncertainty and heightened risks for farmers, and potentially eroding the value of traditional agricultural knowledge such as when to plant particular crops.

However, preserving land carrying capacity by amongst other things, making a contribution to environmental conservation; adapting agricultural production practices to changing weather patterns and having the number of children that they can afford to provide for; are dimension of daily living which communities have potential to control (Mwenga and Nyangito, 2005). Over the last three decades gender issues and women's economic power have received greater visibility and attention on global, regional, and country level development agendas resulting in modest and uneven attainments in most regions in general, and in Sub Sahara Africa in particular (FAO, 2011). The global realization that failure to pay closer attention to the differentiated positions of women and men in society (resource allocation, rights, and opportunities) in formulating policies and designing projects can have adverse impact on development outcomes (FAO, 2011).

Women's entrepreneurship in off farm and on farm businesses that are often considered informal has not been able to reach the expected growth potential. Consequently, addressing women land ownership, agricultural production skills and credit access barriers to women entrepreneurs will boost their participation in the fight against food insecurity (Samiti, 2006). In Africa it is estimated that women especially rural women provide 80 percent of labour force in rural area and producing 60 percent of food production (UNIDO, 2010). Though, women are the main producers of cash crops, there are some prevailing factors that do not allow them to control such proceeds. In Kenya

where the foundation of most communities is agriculture and livestock production, women contribute much of the workforce yet they only hold 1% of registered land in their names and around 5-6% of registered titles are held in joint names (Kenya Land Alliance, 2012).

Overall, women are responsible for about 50 per cent of the world's food production and, in some countries women provide between 60 and 80 per cent of the food for household consumption, mainly as unpaid laborers on family plots. Women's contribution to agricultural production varies from country to country, crop to crop and task to task (UNIDO, 2010). Food insecurity in Mwala sub-county is from a combination of short, medium and long-term factors. Long-term factors include population growth, urbanization, growth of middle-income economies, reduced stock levels, lack of investment in agriculture and climate change, while crop failures in major divisions in the sub-county, increasing fuel prices and bio-fuel production represent some of the short and medium-term factors (Standard Media, 2012).

Among the Counties considered semi-arid in Kenya is Machakos County formerly part of the wider Ukambani area that consisted of Machakos, Makueni, and Kitui Counties. There has been noted improvement in agricultural productivity between 1930 and 1970 in Machakos owing to environmental conservation efforts and improvement in production systems of agriculture (Mortimore et al, 1994). This positive trend increased potential for agricultural production has not led to a uniform improvement in anticipated living standards owing to variations in weather patterns and productivity gradients in different areas of the County (Alila and Atieno, 2012). Parts of Mwala sub-county have experienced a succession of three poor seasons, which caused crop failure, poor household food stocks amidst record high food price (Mwala sub-county, 2011).

Although women in Mwala put more efforts in agricultural production activities some factors such as inadequate rainfall, lack of modern farming skills have been an impediment to their progress (Mbiuki, 2014). In Kenya most of men hold land title deeds as opposed to women and this makes them enjoy more land rights comparatively (Kenya Land Alliance, 2013). African men assume the greatest role of controlling all the farm

outputs and women are rarely consulted as regards farm output decisions (Bardasi et al, 2007).

Mwala Sub-County is within a marginal agricultural livelihood zone that covers the southeastern and coastal lowlands (USAID, 2010). It has a population density of 160 persons per square kilometer. The production seasons are characterized by poorly distributed rainfall ranging between 800-1100mm per year (GOK, 2010). The zone is drought prone and the March to May rains are often unreliable. The short rains are the most productive and account to 70 percent of the food output. Different agricultural factors contribute to the poor produce experienced with maize accounting for 70% of the crops (GOK, 2010). Households have average storage facilities and household heads often sell available food very early after harvest to meet other food and non-food financial obligations. Livestock production is limited to low productive capacity of indigenous breeds that are able to tolerate drought (Geoffrey, 2010).

In Mwala Sub-county the area of study, agriculture is the predominant economic activity however the area is experiencing decline in agricultural productivity attributed to low and erratic rainfall as well as degradation of farmlands. A study was conducted to analyze the extent to which household food access was determined by livelihood food strategy factors employed during hazards (Geoffrey, 2010). It was conducted in two different livelihood zones i.e. high populated livelihood zone Githunguri Sub-county versus medium population livelihood zone (Mwala Sub-county. Household data was collected within two seasons. The conclusion was that households in Githunguri were mildly food insecure while households in Mwala were moderately food secure, that households in Githunguri had better food access than households in Mwala (FAO, 2011).

When women are empowered and have access to land leadership opportunities and choices economies grow, food security is enhanced and prospects are improved for current and future generations (UNESCO, 2011). In Africa 80% of the agricultural production comes from small farmers who are mostly women. Women guarantee livelihoods in rural areas as a result of great efforts in agricultural production. Women production helps guarantee their self-sustenance and to cover other needs such as health

care, paying for education of their children or acquisition of other goods and services which are necessary since they have limited financial capacity caused by an inefficient supply chain and poor conservation of their surplus. Agriculture is the main alternative for rural women and it should come with better access to land and resources for the prevention, adaptation and mitigation of climate change combined with rural women learning how to deal with cultural etiquettes and adapting to various manifestations of this phenomenon. Realizing the importance of rural women in agriculture is an important aspect of gender relations. In many countries the role of women in agriculture is considered to be just a 'help' and not an important economic contributor in agriculture (UNESCO, 2011).

The untapped potential of women in agriculture is gaining better attention in Kenya. The country's new constitution passed in 2010 provides powerful framework for addressing gender equality. It makes the emphasis for women rights in Kenya and their full participation in every aspect of growth and development. During the last ten years many African countries have adopted new land laws in order to strengthen women's land ownership rights. This has helped improve situations of rural women. Despite the vital role they play in agricultural economies, rural women have not fully been empowered to make decisions on agricultural products, land usage and ownership. The current Kenyan constitution provides some rights for women, some of these rights revolve on land issues, access to education, gender equality, access to government tenders (Mbiuki, 2014).

1.2. Research Problem

According to Ministry of Agriculture (2011) majority of locals depend largely on agricultural production for their food. However, in the last two decades food security among many households has been declining due to some environmental factors e.g. unreliable rainfall, lack of agricultural production skills and land ownership rights amongst women who are the key players in food production in the area (GoK, 2010). Due to this decline, majority of households are depending largely on rationed food relief. A research conducted by Mbiuki (2014) shows that due to high food insecurity witnessed in Mwala, majority of women are not able to make enough savings for viable investments but spend large proportions of their incomes on food. The central point of women in household food production has not been documented in Mwala and especially the determinants of improving their productivity. Therefore this research sought to analyze the impact of women perceived determinants on household food security in Mwala Sub-County, Machakos County, Kenya. The main aim of the study was to analyze how factors such as rainfall, women land ownership rights, women agricultural production skills impact on household food security.

1.3. Purpose of the Study

The study sought to analyze the impact of women perceived determinants on household food security in Mwala Sub-county, Machakos County, Kenya. This is because there are numerous women engaged in agricultural production and other income generating activities and their contribution to household food security has not been effectively addressed.

1.4. Research Objectives

1.4.1. Main objective

To analyze the impact of women perceived determinants on household food security in Mwala sub-county, Machakos County, Kenya.

1.4.2. Specific Objectives:

1. To investigate the effect of rainfall on household food security in Mwala sub-county, Machakos County, Kenya.

2. To evaluate the effect of women agricultural production skills on household food security in Mwala sub-county, Machakos County, Kenya.
3. To examine the effect of women land ownership rights on household food security in Mwala sub-county, Machakos County, Kenya.

1.5. Research Questions

1. What are the effects of rainfall on household food security in Mwala sub-county, Machakos County, Kenya?
2. What are the effects of women agricultural production skills on household food security in Mwala sub-county, Machakos County, Kenya?
3. What are the effects of women land ownership rights / access on household food security in Mwala sub-county, Machakos County, Kenya?

1.6. Justification of the Study

This study provides more insight on how women involvement in agricultural activities can enhance food security especially through contribution of women who are a majority in the farming community in the country. The study would also help NGOs and other development actors to know the extent on which women agricultural production ventures contribute to food security and women economic development and the existing gaps that need to be addressed. It would help the government and other stakeholders to come up with policies and different humanitarian activities to boost women led agro enterprises and food productivity which in turn would address food insecurity in the country.

1.7. Limitations of the Study

One limitation of the study was that some of respondents were not ready and free to release some information concerning the study topic for fear of disclosing their situation and showing their suffering. To counter this, the research guaranteed them confidentiality for any information given.

Some of the respondents could share information during the process of answering the questions asked and therefore providing similar answers to the questions asked. The research ensured all the respondents filled their questionnaire without sharing with others.

Some respondents were unwilling to answer research questions before being paid. The research assured them that the research was purely academic and not for commercial purposes and therefore did not give in to their demands.

1.8. Assumption of the Study

The research assumed that being a local in the study areas, the enumerator would administer questionnaires with ease. He was conversant with the local language and therefore able to translate the data collection tools to the respondents. He was also aware of the local administration and would have no difficulties in seeking authority to carry out the research in Mwala sub-county.

1.9. Definition of key terms

Food security- is the access by all people at all times to enough food for an active and healthy life. Ensuring food security entails meeting two conditions: that there is adequate food supplies available and that people have the ability to acquire food from their own production or purchase from the market. Food availability therefore does not refer solely to food self-sufficiency but is linked to incomes and purchasing power (World Bank. 2008).

Gross domestic product (**GDP**) is defined by OECD as "an aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production plus any taxes, and minus any subsidies, on products not included in the value of their outputs (World Bank, 2008).

Land ownership rights: - refers to permission to use and control a given piece of land (Alila and Otieno, 2012).

CHAPTER TWO

2.0. LITERATURE REVIEW

2.1. Introduction

The chapter discusses the theoretical orientation which includes tradition and hierarchical theories, empirical review which include women agricultural production skills and food security, women land ownership rights and agricultural production skills.

2.2. Empirical Review

Women food production is increasingly recognized as an important driver of economic growth, productivity, innovation and employment, and it is widely accepted as a key aspect of economic dynamism. Transforming ideas into economic opportunities is the decisive issue of entrepreneurship. History shows that economic progress has been significantly advanced by pragmatic people who are entrepreneurial and innovative, able to exploit opportunities and willing to take risks (Hisrich, 2005).

The role of women on food security and in economic and social development has often been underestimated (FAO, 2011). Over the years, however, it has become increasingly apparent that women entrepreneurship indeed contributes to economic development**.** In other words, it was not common to see women-owned businesses worldwide especially in developing countries like Kenya. Even though we observe a number of women entrepreneurs in the business, recent studies show that most of them are found in agricultural activities. According to the Kenya Bureau of Statistics (2004), almost 50% of all new jobs created in Kenya are attributable to agro economies and enterprises, and roughly 49% of new businesses that were operational between 1991 and 2003 were owned by women. Women's productive activities, particularly in food production, empower them economically and enable them to contribute more to overall development (Mathagoni, 1989). Whether they are involved in small or medium scale production activities, or in the informal or formal sectors, women's food production activities are not only a means for economic survival but also have positive social repercussions for the women themselves and their social environment (UNIDO, 2010).

In many societies women do not enjoy the same opportunities as men. In many transitional economies progress has been achieved in opening doors to education and health protection for women but political and economic opportunities for female entrepreneurs have remained limited. Stuti (2005) suggests that concerted efforts are needed to enable female entrepreneurs to make better economic choices and to transform their businesses into competitive enterprises, generating income and employment through improved production. The importance of agriculture and women's participation in the food production sector has increased tremendously since the mid-1980s. Indeed, women agro economies have now become the main source of employment and income for the majority of women in developing countries, including Kenya (Murton, 1999).

Moreover, entrepreneurship in this sector is widely seen by policymakers and donors as a means of economically empowering marginalized groups, including disadvantaged women such as single heads of households or women in rural areas (McMichael, 2004). The increased participation of women in the food production sector has not only altered women's access to independent cash income and their control over economic resources, but also poses a socio-cultural challenge. Hadiya (1998) asserts that women are increasingly contributing to meeting household economic needs, a role that was traditionally left to men in many societies. However, women's involvement in agricultural production is also an additional responsibility to be added to the multiple roles that they have traditionally played in society.

2.2.1.Rainfall and household food security

Africa has been pinpointed as one of the most exposed continents that suffer the devastating effects of inadequate rainfall with colossal economic impacts because it often lacks adaptive capacity (FAO, 2011). The African rain-fed agriculture is viewed by many observers to be the most vulnerable sector to climate variability and the potential impacts of climate change on agriculture are highly uncertain (Timmer, 1983).

The pattern of rainfall is unreliable, making rain-fed agriculture a hazardous operation. Drought periods are common, forcing people to depend on social welfare, food-for-work programs and food deliveries by donors. The International Crop Research Institute for

the Semi-Arid Tropics (ICRISAT) has engaged in studies to identify crops that can withstand the moisture stress prevalent in many parts of Machakos County (Odeny, 2001:43). One such crop has been the pigeon pea. However that it requires eight to eleven months (Silim, et al, 2001) to be harvested; is challenged by the increasing frequency of droughts and especially in the bimodal rains pattern characteristic of most of Ukambani region. The rapidly changing weather patterns resulting in soil moisture stress present an ongoing challenge to researchers in an attempt to find crops that would be sustainable in such semi-arid lands like Mwala Sub County.

2.2.2. Women agricultural production skills and household food security

Rural women play a critical role in rural economies and societies in both developing and developed countries. Across the world, rural women have proven their commitment and resourcefulness in finding or adapting new ways to improve their own lives, as well as those of their families and communities (ILO, 2008). Agri-business skills imparted on rural women are crucial in translating agricultural production (including livestock, crops, fisheries, agro-forestry, and wild-harvesting of foods) into food and nutrition security for, and the well-being of their families, communities and nations (Barnes, 2008).

These agricultural production skills have created shift in agri-business by women that values and promotes value chains that are more focused on local markets. This can also provide rural women with greater opportunities for jobs along more local value chains (e.g. storage, value-addition processing, and marketing) and entry into local markets. Mayoux (2000) providing women with equal access to information, training and markets (in law and in practice) is vital to their economic power. Agricultural production skills imparted on women are likely to motivate them to work hard and achieve enough food for their family and the society at large.

2.2.3. Women land ownership / access rights and house hold food security

UN agencies highlight that in developing regions, food security is often dependent on women's subsistence production to feed the population. FAO estimates that if women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent (FAO, 2009). The gains in agricultural production could lift

some 100–150 million people out of hunger. Yet, these estimates are based on the existing distribution of land. If women had even greater access to land the global benefits could be even greater. The United Nations Educational, Scientific and Cultural Organization (UNESCO) highlights that women's participation in world food production is in extreme contrast with their ownership of the land (UNESCO, 2011).

Mbiuki (2014) cited Wanyeki (2003) saying in African customary practices women are disqualified from the management of land because of the gender based division of labor that exists in communities. Therefore in such communities women's land rights are limited. This implies that women to use their fathers or spouses' land but not to own. Because of the patriarchal nature in African setup women are perceived as inferior beings therefore they are left out in most of issues pertaining lands making decisions (Bancy, 2000). Land rights are only allocated through men either sons or husbands. In some African countries, women are rarely allocated land in their own right, particularly in patrilineal societies (McMichael, 2014).

Under customary land tenure systems, women are forbidden to own or control land. Different cultural systems that believe women cannot even be acknowledged to own land or talk of land and cows and all that property that men have, and they also put women as part of that property (Murei, 2011). Ownership, control and access to land is important for improvement of women's welfare as well as their social status (Kenya Land Alliance, 2012). Most rural people, a majority of who are women rarely have access to formal or legal ownership to land due to the complexity and cost of procedures involved (Roy, 2001). This is further complicated by traditional beliefs, attitudes and perceptions that dictate land ownership, deeming it a preserve of male members of the Society. As a result, women are placed in a position of considerable insecurity with regards to their land rights (Leonard, 1992).

2.2.4. Gender equality and food security

Food and nutrition security is a gender justification issue (FAO, 2011). Low status and lack of access to resources mean that women and girls are most disadvantaged by the inadequate global economic processes that govern food systems and by global trends

such as climate. Evidence shows strong correlations between gender and inequality and food and nutrition insecurity. For example despite general economic growth in Kenya, thousands of women and girls still lack nutrition security as a direct result of their lower status compared to men and boys (Mbiuki, 2014).

Such inequalities are compounded by women's and girls' often limited access to productive resources, education and decision making by the normalized burden of unpaid work including care work (Mbiuki, 2014). Women literally feed the world; despite often limited access to either local or global markets. They constitute majority of food producers in the world and usually manage their families' nutritional needs. They achieve this despite entrenched gender inequalities and increasing volatility of food prices yet their own food security and nutritional needs and often those of their daughters are being neglected at the household level where discriminatory social and cultural norms prevail (FAO, 2011).

2.3.Theoretical Orientation

Various theories have been used to contextualise the women aspect on food security. These range from traditional theory to hierarchical theory.

2.3.1. Feminist Theory

Feminist theory is the extension of feminism (Giligan and Carol, 1977). It aims to understand the nature of gender inequality. It examines women's social roles, experiences, interests, chores and feminist politics in a variety of fields such as anthropology and sociology, communication, psychoanalysis, in economics, literature, education and philosophy.

The theory focuses on analyzing gender inequality. The themes explored in this theory include discrimination, oppression, patriarchy and stereotyping. Dezingher and Catherine (1996) argued that if a woman of any colour performs tasks that were supposedly limited to men, then any woman of any colour could perform those same tasks.

2.3.2. Traditional Theory

According to Risman (1998) tradition theory focuses on how social structure creates gendered behavior. This approach argues that men and women behave differently because they fill different positions in institutional settings, work organizations and families, that is, they take on different gendered roles. The theory also emphasizes the interaction perspective and contextual issues such as cultural expectations. According to Risman (1998), this concept implies that an individual is expected to create differences that are neither inevitable nor essential. This theory focuses on emphasizing on role of women to ensure their families are food secure. It is through social structure that a woman must work hard to feed the family no matter the prevailing conditions. These gender differences can therefore be interpreted to mean legitimatization of inequality, as what is female in a patriarchal system is devalued (Dollar and Gatti, 2000).

This argument finds support in a similar study by Sen (1999) in which case there is often less than efficient investment in girls because the returns are perceived to accrue to another family after marriage (Sen, 1999). Traditional division of labor by gender in which women's primary responsibility is usually food production and preparation and collection of fuel and water, has continued in the rural areas of the region. In spite of the huge responsibilities shouldered by the female half of a region's population, in most cases they do not enjoy equal status as men when it comes to access to the resources necessary for efficient agricultural production (McRae and Zwi, 1992) The hierarchical view expounds on gender inequalities and their linkages to development where in most countries women are denied access to land ownership and credit facilities and business overheads.

2.3.3. Hierarchical Theory

The foundations of the hierarchical theory are grounded in Amartya Sen's arguments. Sen (1999), equated development to freedom, in which case economic growth measured in GDP is not an ultimate goal but rather the freedoms associated with it: freedom to exchange goods and labor, freedom to make choices and influence one's life, freedom to live longer, and freedom to choose to get education. Based on this context, restrictions on owning property, saving or borrowing, or making labor contracts would qualify as

disincentives to growth, while freedom to exercise these activities would be associated with economic growth. However, women are deprived such rights and are left to carry out productive and reproductive chores in the society (Schumpeter, 2005).

Thus gender inequality, considered as a hierarchical view of gender relations, with men above women, and women regarded as inferior and less valuable by virtue of their sex, is growth retarding (Mikkola 2005). The argument is that gender equality expressed in an equal valuing and provision of opportunities for both genders enhances development in all spheres. According to UNESCO (2011) women also have an important role in establishing sustainable use of resources in small-scale fishing communities, and their knowledge is valuable for managing and protecting watersheds and wetlands. This role is prompted by the thinking and belief that their role is not much recognized and their obligations are of that of caretaker. This theory may not be true looking at the nature and characteristics of women.

According to Green and Cohen, (1995) women are enabled to cultivate food crops, produce commercial crops alongside men, manage livestock, and grow vegetables in home gardens, fish, and harvest from the forest. When women have an income, substantial evidence indicates that it is more likely to be spent on food and children's needs. There is no agreement among researchers with regard to the differences in the characteristics of male and female entrepreneurs. Some groups of researchers agree that there are no differences. But some others state differences. For example Green and Cohen (1995) stated, "An entrepreneur is an entrepreneur," and it should not matter what size, shape, color, or sex the entrepreneur might be. If so, good research on entrepreneurs should generate theory applicable to all. While research shows similarities in the personal demographics of men and women entrepreneurs, there are differences in business and industry choices, financing strategies, growth patterns, and governance structures of female led ventures.

2.4. Conceptual Framework

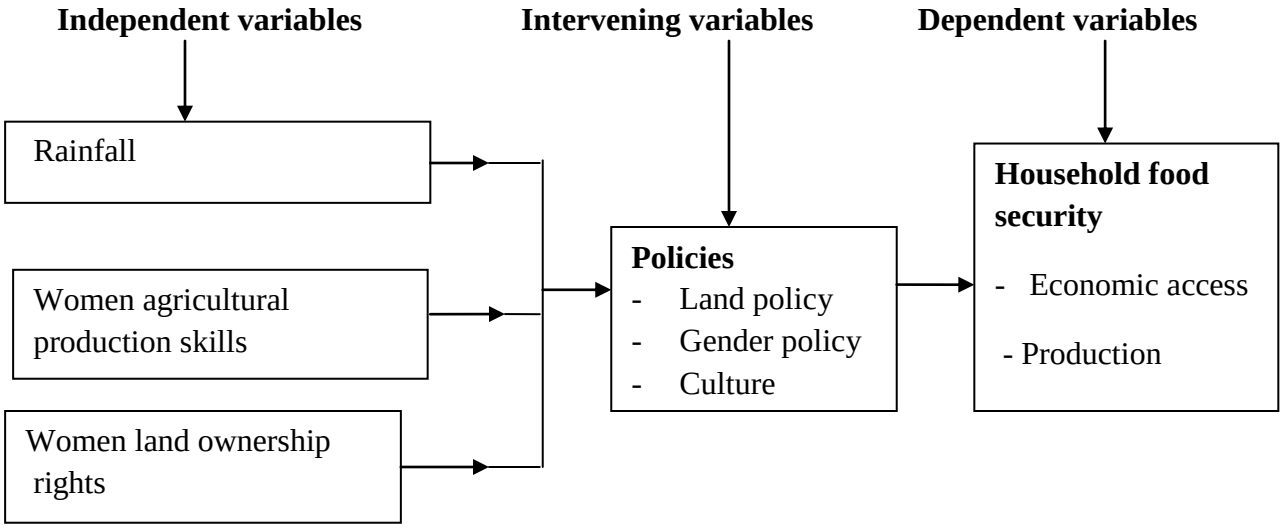


Figure 1: Conceptual framework

Rainfall has a direct impact on household food security. Inadequate rainfall could lead to less food production thus translating to food insecurity. Women agricultural production skills have a correlation with household food security in that use of obsolete food production methods could lead to less production which in turn leads to food insecurity.

Women land ownership / access rights are directly linked to household food security in that, women with these rights can use land as collateral to obtain loans to improve food production thus addressing household food security properly. When they have the rights they tend to use the land in a sustainable manner thus being able to reap long term benefits in terms of production. Also when women have land access rights they can practice many agricultural activities to curb household food insecurity.

CHAPTER THREE

3.0. RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the methodology that was used to carry out the study. It further describes the type and source of data, the target population and sampling methods and the techniques that were used to select the sample size. It also describes how data was collected and analysed.

3.2. Research Design

The research used descriptive design According to Kerliger (1973; 379) descriptive design is a system of empirical inquiry in which the scientist does not have direct control of independent variables because their manifestation have occurred or because they inherently cannot be manipulated. The descriptive design is recommended because educational researches do not lead themselves to experimental inquiry (Kerliger, 1973; 372). The study used a descriptive design to explore possible cause-effect relationships among variables that cannot be manipulated by the researcher in analyzing women related determinants on household food security in Mwala sub-county, Kenya.

This study investigated various variables such as rainfall, women agricultural production skills and women land ownership rights. The research also adopted quantitative and qualitative research data analysis methods.

3.2.1. Study Area

This study was carried out among women in Mwala Sub-county of the Machakos County of Kenya. The Sub-county is in the semi-arid zone of Eastern Kenya. it borders Kangundo Sub-county to the West, Kathiani Sub-county to the North West, Yatta Sub-county to the East and Machakos and Masinga to the North. The Sub-county usually has two rainy seasons, one between March and April and another between November and December. Rainfall in the Sub-county varies with altitude. The average annual rainfall ranges from 1000 mm in some of the highlands to slightly below 500 mm in the low-lying south and south-east parts of the Sub-county (Ministry of Agriculture, 2011).

Its total area is approximately 1,018 km^2, sq km ranging from 85 km wide in the North and less than 20 km wide in the South (Mwala Agricultural Office Report, 2011).

3.2.3. Target population

Mwala sub-county has a population of approximately 46, 034 women (National Census, 2009). The locations sampled were Masii, Makutano, Mbiuni, Muthetheni, Wamunyu and Kibauni location.

3.2.4. Sample size

Mugenda and Mugenda (2003) argued that the sample size depends upon the number of variables in the study, the type of research design, the method of data analysis and the size of accessible population. For descriptive research the questions posed is; what sample size will produce estimates that are precise enough to be useful, given the sample techniques. To make the study representative; a sample size of the respondents was determined using Krejcie and Morgan (1970) formula:- $(N=Q_n / \sum Q * 100) + (Q_n / \sum Q_n \text{ x } 100\%)$ n^{th} term.

The sample size was large enough to be representative. The sample size was probably used to reduce the number of respondents in the study to a manageable number which was also representative.

The same formula was used to determine the final sample size from the data collected. The sample size N was calculated as follows:-

3.3. Sampling design and procedures

The research used simple random sampling technique which refers to the basic sampling technique where the researcher selects a group of subjects (sample) for study from a larger group (population). Each individual is chosen entirely by chance and each member of the population has an equal chance of being included in the sample. The sample size distribution was determined using the table below, a table used for determining sample size according to Krejcie and Morgan (1970).

Table 1: Sample size distribution

Location	Population 2009 Census	Sample size
Masii	10,367	22
Makutano	10,127	22
Mbiuni	9,141	20
Muthetheni	6,805	15
Wamunyu	4,666	10
Kibauni	4,927	11
Total	**46,034**	**100**

Formula =Q/∑Q *100%

Q = Population of an Area

∑Q = Total Population

e.g. Kibauni = 4,926/4,6034* 100 = 10.7

Out of 100 questionnaires administered, 25 were non-responsive and hence 75 were used in the analysis.

3.4. Data collection instrument and procedure

Questionnaires were given to the women after obtaining permission from the Mwala sub-county development office. In order to avoid discussion among the respondents the questionnaires were filled in presence of the researcher and this also gave an opportunity to answer and clarify some things that were not clear to the respondents. The researcher used questionnaire, interviews and documentary data collection methods.

3.4.1.Questionnaire method

A semi-structured questionnaire was administered to collect both quantitative and qualitative data. When a researcher is not certain of respondents understanding or ability to respond to questions, a face to face administration of the questionnaire as opposed to mailing or delivery and collection of questionnaires is preferred (Babbie and Mouton, 2001:249). The authors further identify appearance and demeanor, familiarity with

questionnaire, follow on questions, recording precision and probing for responses as key characteristics that will determine the success and failure of the study. The research opted for a face to face administration to all respondents to allow for greater interaction and accuracy in questionnaire. Another reason for administering the questionnaire by the research team is that respondents were not literate enough to provide written responses. The items in section one of the questionnaire sought demographic information about the respondents such as age, experience, qualifications and marital status. The second part of the questionnaire sought information on effects of some women perceived determinants on house food security. Seventy five questionnaires were administered to women. To be able to cover the sample size within the required time without compromising quality, data was collected by trained Research Assistant.

3.4.2. Key informant interview method

Various persons in any community owing to their position, reputation, experience, or social status are often privy to information the normal community member doesn't have. These key informants ranged from Government officials, NGOs personnel, and community leaders. As pointed out by Flick (2002:77) the respondent is well versed with the topic at hand and should be allowed to within relevance provide as much information as they can. The research used the method to collect quantitative data on the study topic in Mwala sub-county, where interview guide was used as the tool. In this research twenty five key respondents provided information on specific relevant issues for Mwala.

3. 4.3. Documentary analysis

The secondary data related to the study was obtained using this method. Basically this relied much on the library research work that involved reading published textbooks on the subject of study, documents published or unpublished, reports and policy papers related to the study. This helped the researcher know what other scholars have said concerning effects of food insecurity on women economic empowerment process in Mwala sub-county. This method helped him show the correlation between the primary data and the existing secondary data concerning the study.

3.5. Instrument Validity and Reliability

To determine the validity of the instrument, a pilot study was carried out. After the study, certain items, which looked ambiguous or not clear were either eliminated or altered. The instrument was also validated by senior lecturer in the department. The split-half method was used to establish the co-efficiency of the internal consistency of the research instrument. This method involved splitting the statements/items in one subset of halves (odd and even numbered items). All odd numbered items were then placed in one subset while the even numbered items were placed in another subset. Each of the two subsets was then correlated using Pearson's product moment coefficient and this was taken as an estimate or reliability.

3.6. Data Analysis Presentation

Data was analyzed using descriptive statistics. This was presented by the use frequency distribution tables, charts or percentages. The tabulation was done using SPSS (Statistical Package for Social Science Division). Most parts of the questionnaire contained questions that were to detect reality as well as perception where Lickert scale was used. All information was then put together for the researcher to make conclusions and recommendations. Data analysis also used coefficient of variation which is expressed as the ratio of standard deviation and mean. Coefficient of variation is the measure of variability of the data. A higher value of coefficient of variation (50% and above) means that the data has high variability and less stability. When the value of coefficient of variation is lower (<50%) it means the data has less variability and high stability (Dessinger and Moseley, 2004). Coefficient of variation is expressed as a percentage, describing the standard deviation relative to the mean in a notation of *CV.* The following formula was used to compute the coefficient of variation;

$$cv = \frac{s}{\bar{x}} \cdot 100\%$$

Where: CV - Coefficient of Variation, S – Standard Deviation and the denominator is the mean (Dessinger and Moseley, 2004) where low cv means its≤ 50% and high cv > 50%

3.7 Ethical issues

Respondents were informed about the purpose of study, expected duration, the freedom to ignore items they wished not to respond to and benefits of the study to them, so that

they could make informed decisions on whether to participate. The researcher assured respondents of anonymity and confidentiality of data collected.

CHAPTER FOUR

4.0. RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents the results and discussion of data gathered from the field. These were summarized in tables, graphs and figures.

4.2. Respondents characteristics

The study collected data from 75 respondents comprising of women farmers in Mwala Sub-county.

4.2.1. Respondents' Age

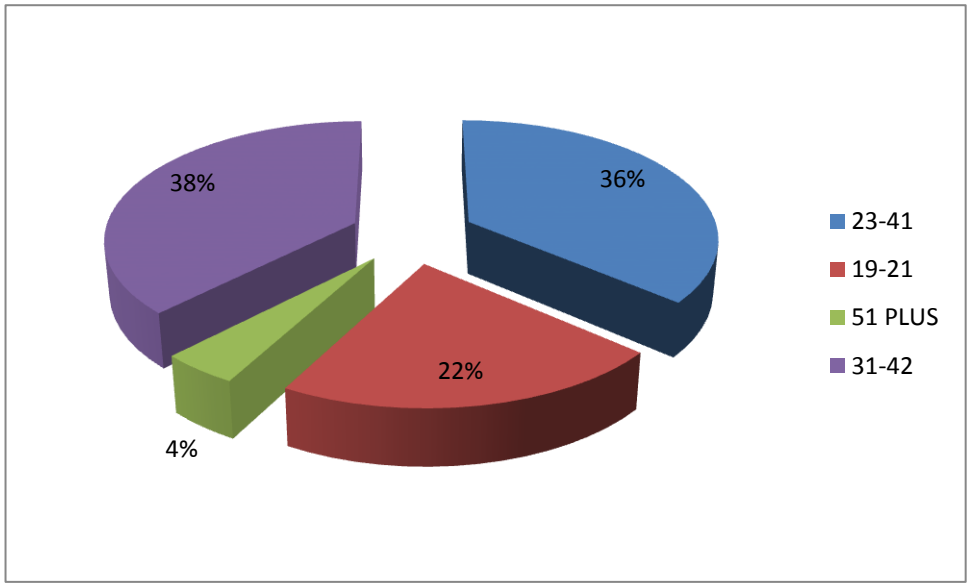


Figure 2: Respondents' age

Source: (Author, 2015)

According to Fig 2, 23 % of respondents were of ages between 41and 50 years, 19% were 21-30 years, 6% were from 51 years and above while 52% were between 31 and 40 years. This implies that majority of respondents in the study were between 31 and 40 years old. The least number were the women aged 21 -30 years. The respondents cited that many of

the women within this age bracket had left the rural area to urban areas in search for employment and education opportunities.

4.2.2. Respondents' Marital Status

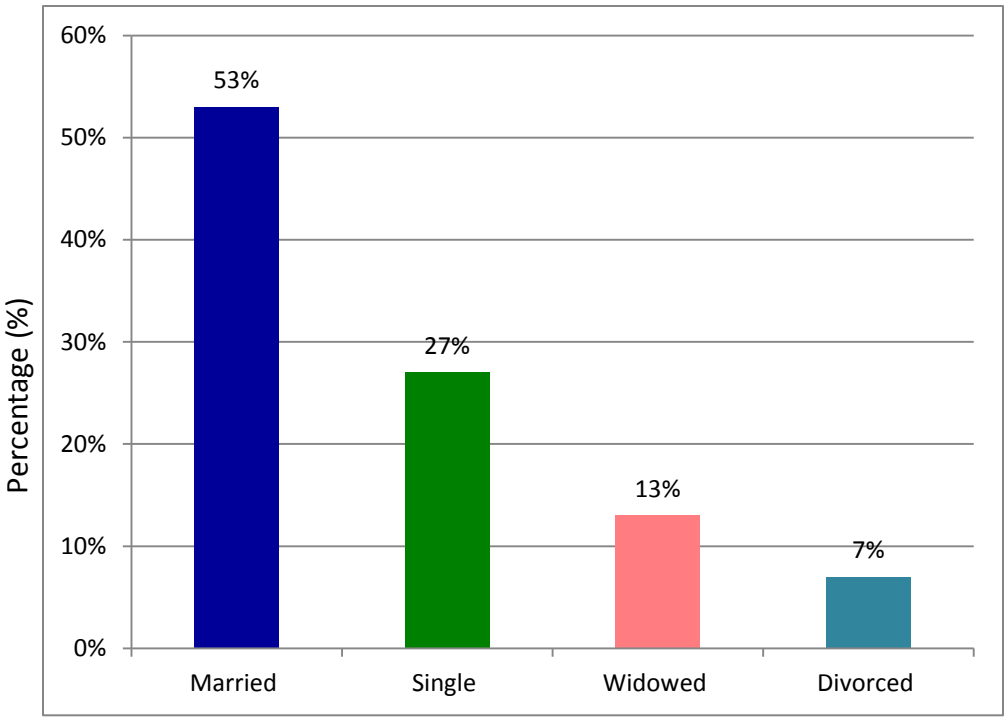


Figure 3: Respondents' marital status

From figure 3, 53% of the respondents were married, 27% were single while 13% of the respondents were widowed and the least (7%) of the respondents were divorced. This implies that majority of the respondents own or have access to their husbands' or family lands. Therefore, they have greater opportunity of investing in agricultural production activities as compared to the other categories. They also get other agricultural incentives from husbands / family members to increase their production hence addressing issue of food security.

4.2.3.Respondents' Education

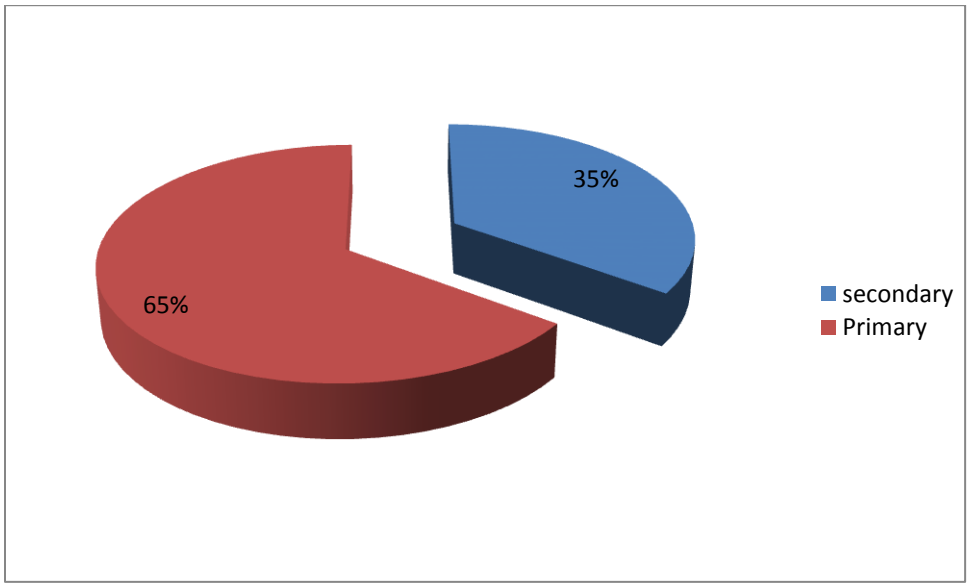


Figure 4: Respondents' education

Source: (Author, 2015)

Figure 4 presents respondents' educational levels, 35% of respondents had secondary education, 65% had primary education level while no respondent had university degree and diploma level. Most of the respondents have primary school education level and no respondent had a degree or diploma education level. Some of the people interviewed in the sub county cited low education levels amongst women in the area as the main cause for poverty and food insecurity since this hinders women from adopting modern improved farming and business methods. According to the study, even women who have secondary education are unable to read and understand the emerging farming trends and adoption is a challenge.

4.2.4. Respondents' Main Occupation

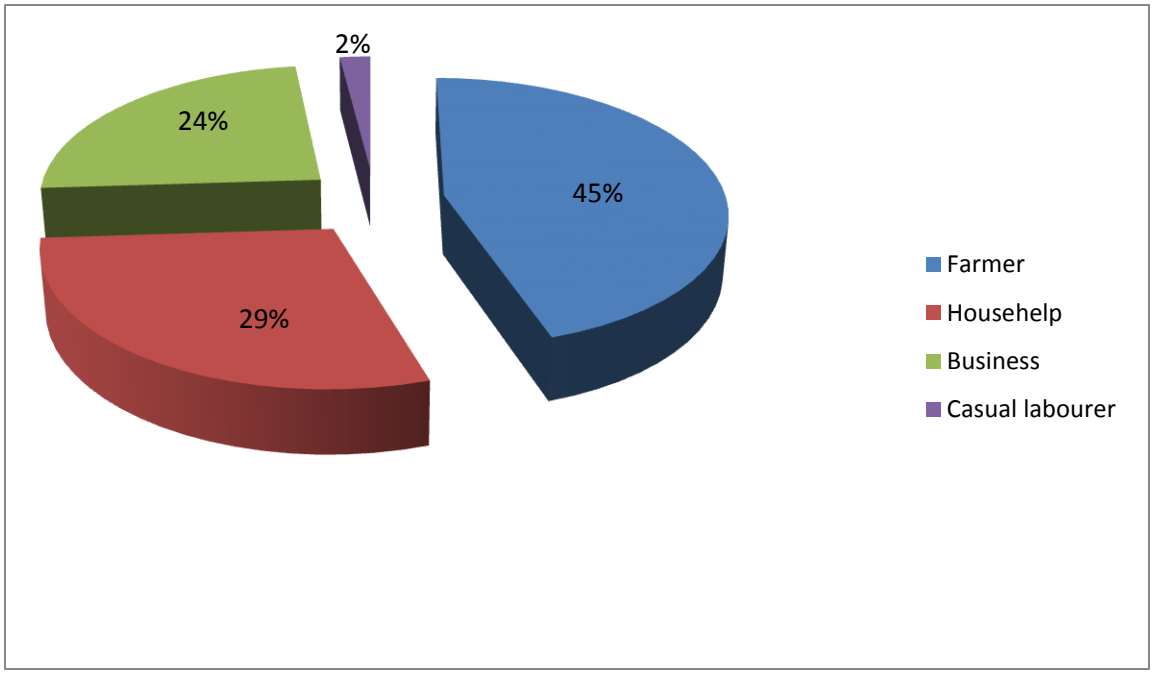


Figure 5: Respondents' main occupation

Source: (Author, 2015)

According to the Figure 5 24 % of respondents were in business, 2% were casual laborers, 29% house help while 45% were doing farming. None of the respondents was employed as a civil servant. The researcher observed that majority of these farmers practice subsistence farming.

4.2.5. Respondents' stay in Mwala Sub County

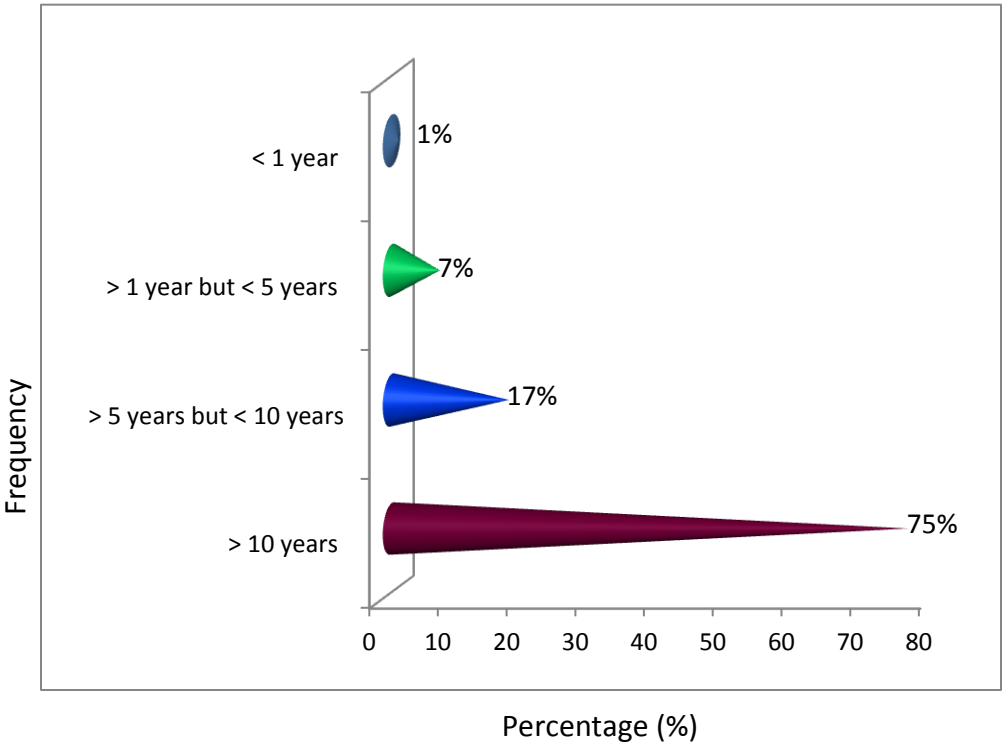


Figure 6: Respondents' stay in Mwala Sub County

Source: (Author, 2015)

Figure 6 shows that 1% of the respondents had lived in Mwala for less than a year, 7% of the respondents for more than a year but less than 5 years, 17% had lived in Mwala for more than 5 years but less than 10 years and 75% of the respondents have lived in Mwala for more than 10 years. Therefore most of the respondents have lived in Mwala sub-County for more than 10 years. A majority of the respondents were well versed with Mwala sub-county and the type of agricultural activities that can thrive best in such areas.

4.3. Perceived effects of rainfall on household food security

4.3.1. Has inadequate rainfall been experienced in the last three years?

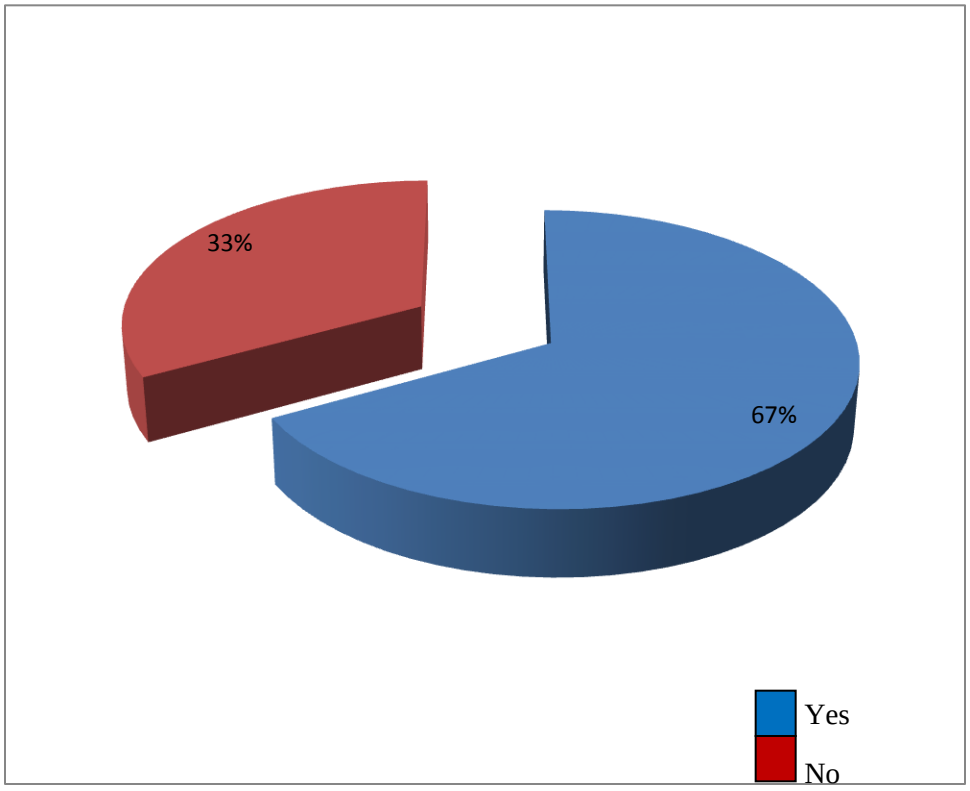


Figure 7: Whether inadequate rainfall been experienced in the last three years

Source: (Author, 2015)

According to the Figure 7, 67% of the respondents agreed that inadequate rainfall had been received in that area for the last three years while 33% were of the opposite opinion. Therefore the overall implication is that inadequate rainfall has been experienced in the area.

4.3.2. Perceived effects of inadequate rainfall to locals' food security

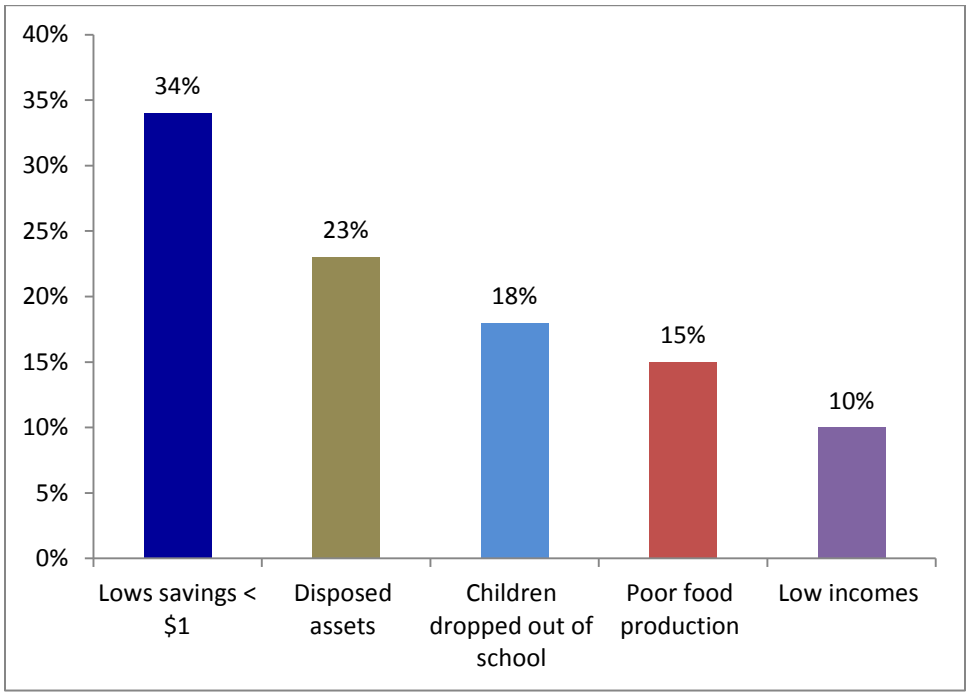


Figure 8: Perceived effects of rainfall to locals' food security

Source: (Author, 2015)

Figure 8 shows the effects of inadequate rainfall to locals' food security. 23% of respondents have disposed their assets, 15% have experience poor food production, 10% of respondents have low incomes, 18% their children have dropped out of school and 34% have low savings less than a dollar per day. This implies that due to unreliable rainfall majority of respondents do not save and all what they earn they spend on food. Through the key informants interviewed, majority cited that unreliable rainfall has reduced their food production and women are unable to expand their agricultural ventures. According to one of the respondents, those` who have received Uwezo funds have used the money to buy certified seeds and fertilizers but due to rain failures they have reaped nothing from their sweat.

4.3.3. Government measures to improve women contribution on food security

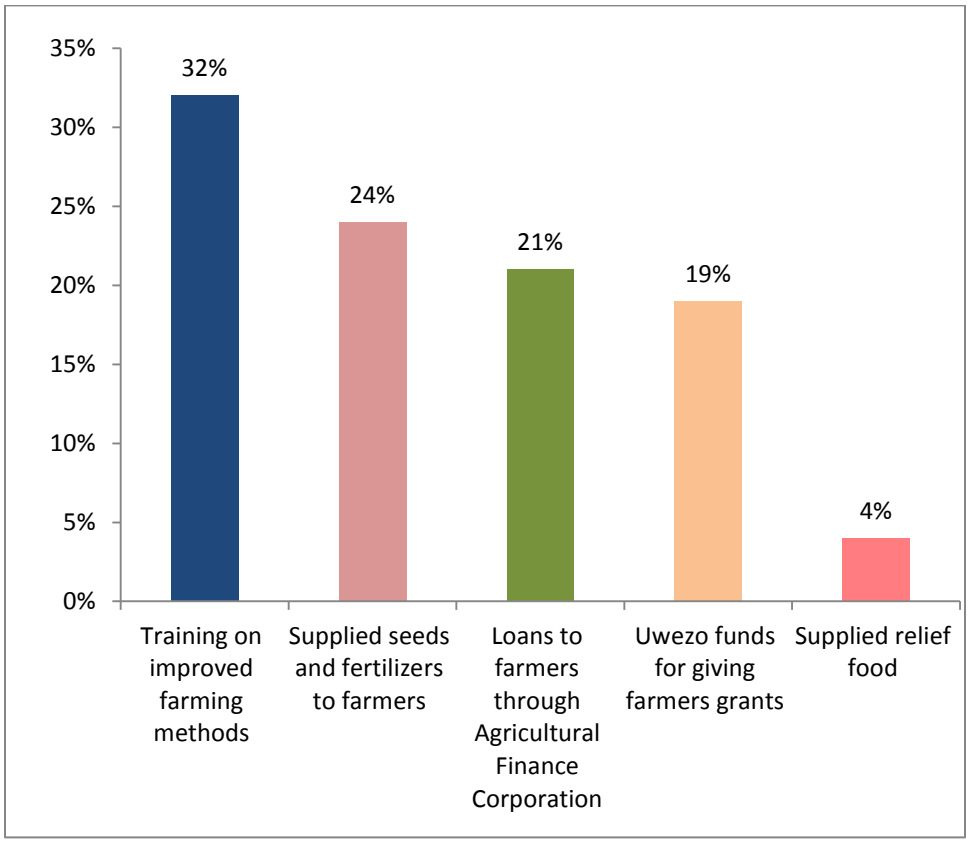


Figure 9: Government measures to improve women contribution to food security

Source: (Author, 2015)

The Figure 9 shows that government measures to improve women food security in the sub county while 32% of respondents said the government has provided training on improved farming methods and business management, 4% said the government has provided relief food, 24% have said the government has supplied seeds and fertilizers to farmers, 19% said the government has introduced uwezo fund for giving farmers grants, 21% said government has given loans to farmers through Agricultural Finance Corporation. This implies that majority of respondent have received training from government on how to improve women food security. Due to high illiteracy levels few are able to grasp the concepts to improve food security in the area.

4.4. Respondents' Skills and Household Food Security

4.4.1. Respondents' main occupation (agricultural and any other)

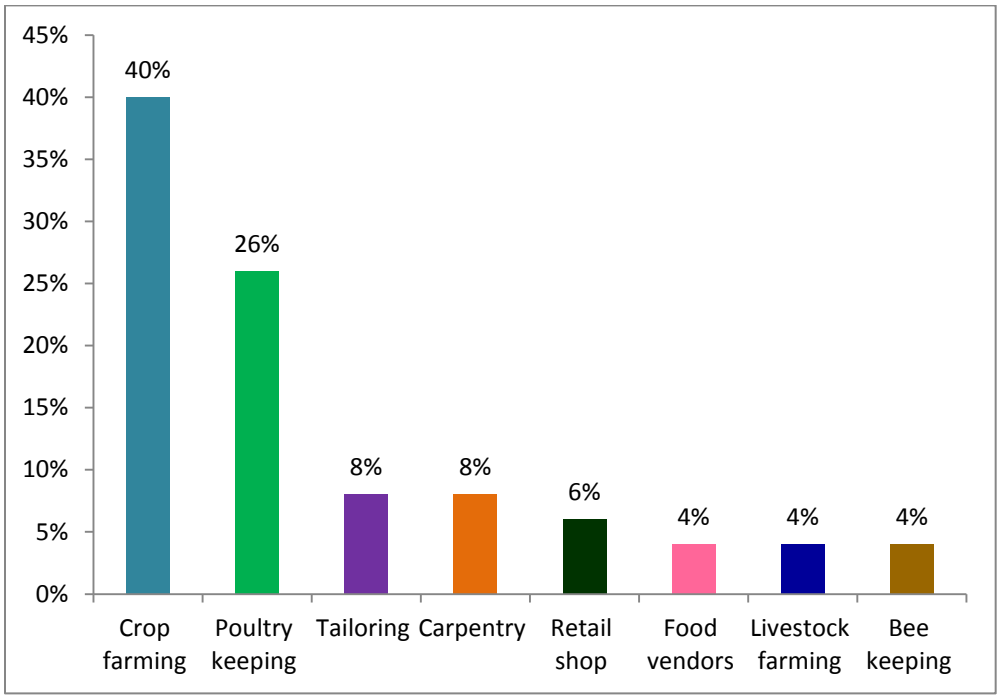


Figure 10: Respondents' main occupation (agricultural and any other)

Source: (Author, 2015)

Figure 10 shows that 40% do farming, 26% poultry keeping also shows that 8% of respondents practice tailoring and capentry each while 6% run retail shops, food vendors, livestock farmers and beekeeping is represented by 4% of the respondents for each. Therefore majority of respondents are doing crop farming and poultry keeping although in small scale and therefore the proceeds from these ventures are inadequate to address food security issues appropriately.

4.4.2. Respondents ability and expertise in managing current food production venture

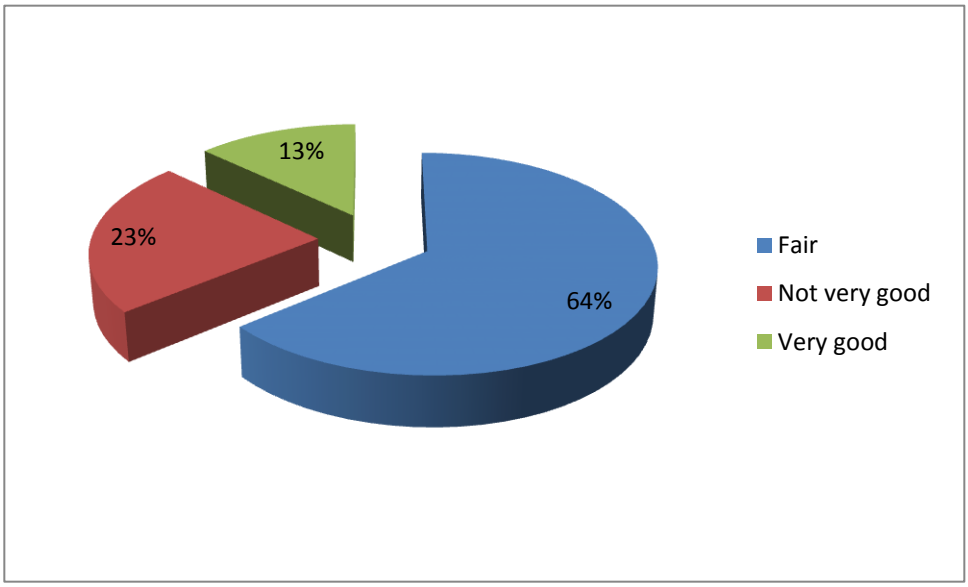


Figure 11: Respondents ability and expertise in managing current food production venture

Source: (Author, 2015)

Figure 11 shows respondents' ability and expertise in managing current food production venture. 23% are not very good in managing their current food production ventures, 13% are very good in managing their food production venture while 64% of respondents are managing their food production ventures fairly. The implication is that minority of respondents are managing their food production process in a very good way for increased productivity.

4.4.3. Respondents have received training to manage agricultural food products

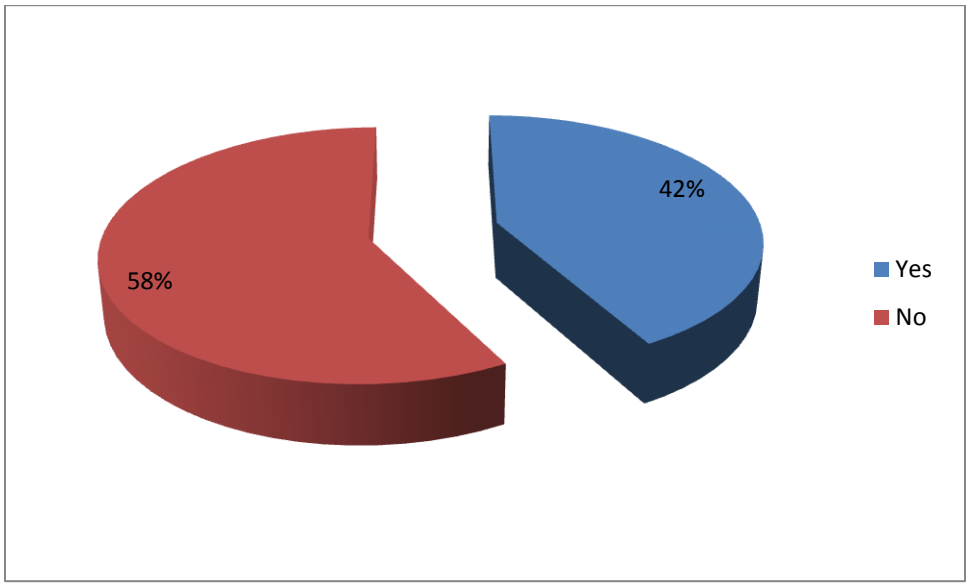


Figure 12: Respondents have received training to manage agricultural food products

Source: (Author, 2015)

According to Figure 12, 58% of respondents have not received training on how to manage agricultural food products while 42% of respondents have received training on the same The implication is that majority of respondents have not been trained on agricultural food products management. Mbithe Kasusya confirmed this by asserting that she uses rudimentary techniques of doing business, technique learnt from her late mother.

4.4.4. After Training benefits enjoyed by respondents

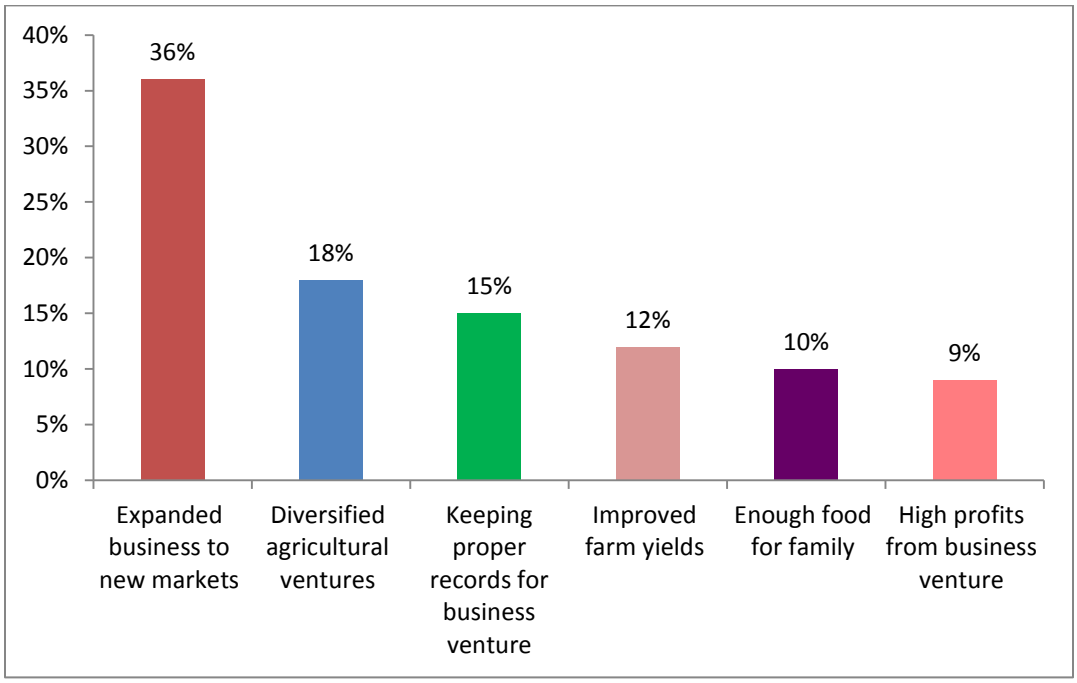


Figure 13: After Training benefits enjoyed by respondents

Source: (Author, 2015)

Figure 13 shows that 36% of respondents have expanded their business to new markets after receiving training on how to manage their agricultural activities but these businesses are majorly on small scale basis and therefore cannot effectively address food security issues properly because the overall returns are minimal. 18% have diversified their agricultural ventures, 15% are keeping proper records for their business ventures, 12% have improved their farm yields while 10% have enough food for their families and 9% are getting high profits from their business venture. Although the respondents concurred that they have benefitted from the trainings, it was evident that the benefits were minimal because they were doing it in small scale hence unable to address food security.

4.5. Land Ownership Rights /Access and Household Food Security

4.5.1. Respondents' land ownership/ access rights

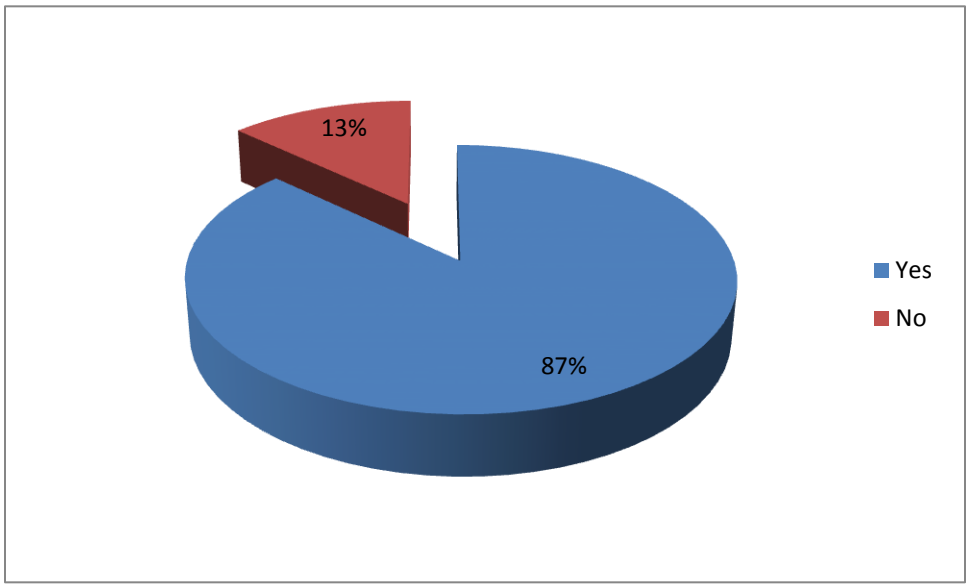


Figure 14: **Respondents' land ownership/ access rights**

Source: (Author, 2015)

The Figure 14 shows that 13% of respondents do not own / have access to land while 87% of respondents' own / access to land. The implication is that majority of respondents own / have access to land by virtue of practicing their agricultural activities and residing there. Many of the respondents do not have titles or allotment numbers which does not make them bonafide members. Therefore, they cannot use these titles as collateral to obtain loans to improve their agricultural production activities therefore end up being food insecure.

4.5.2. Respodents household land holding in acres

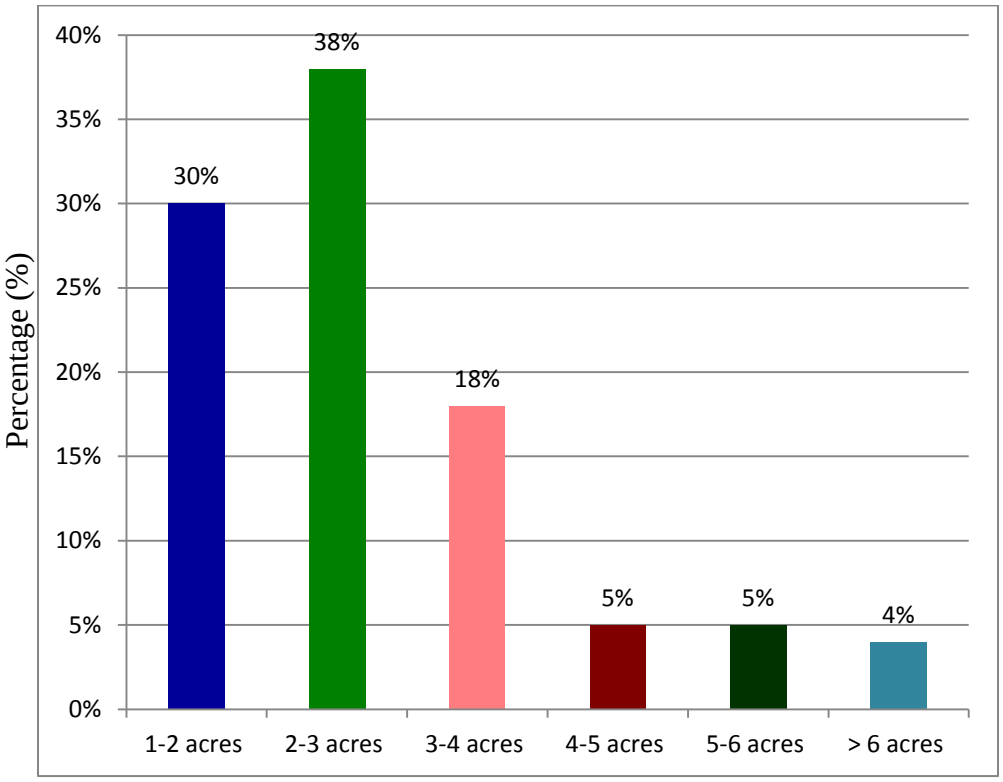


Figure 15: Respondents' household land holding in acres

Source: (Author, 2015)

The Figure 15 shows that 30% of the respondents had 1-2 acres of land, 38% had three to four acres of land while 18% had 3-4 acres; 5% had four to five acres of land while another 5% had five to six acres and 4% had more than six acres. This implies that majority of respondents had three to four acres of land and only few respondents who had six acres and above. According to the figure 15 majority of the respondents own small acreages of land and only practice small scale farming whereby the production proceeds they get cannot address food insecurity appropriately.

4.5.3. Respondents ownership of land title / allotment number

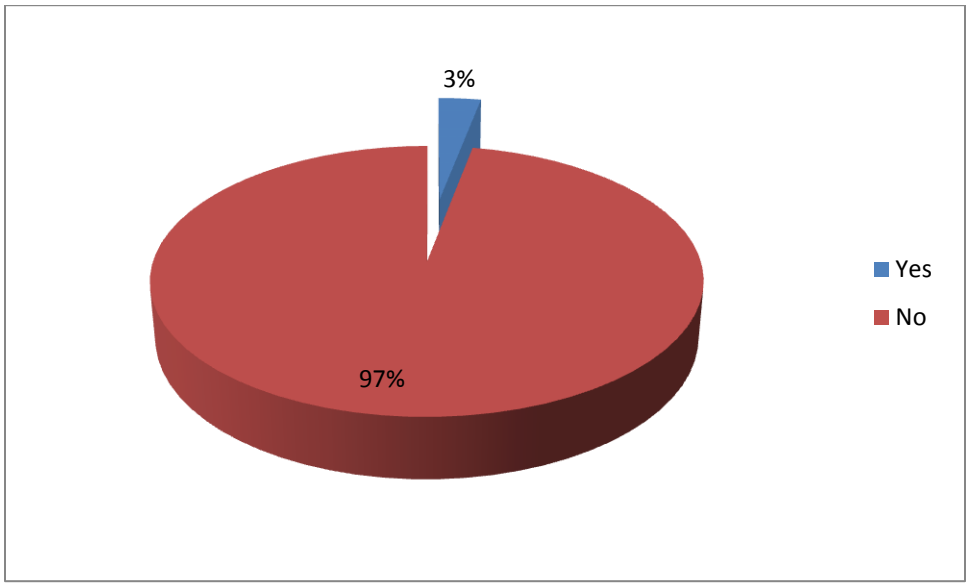


Figure 16: Respondents ownership of land title / allotment number

Source: (Author, 2015)

The Figure 16 shows that 3% of respondents own land title / allotment number while 97% of respondents do not own land title /allotment number. Therefore it implies that majority of respondents do not have titles or allotment numbers even though they have access to land. In short, they own land but without legal documentation.

4.5.4. Reasons for not owning land title deed / allotment number

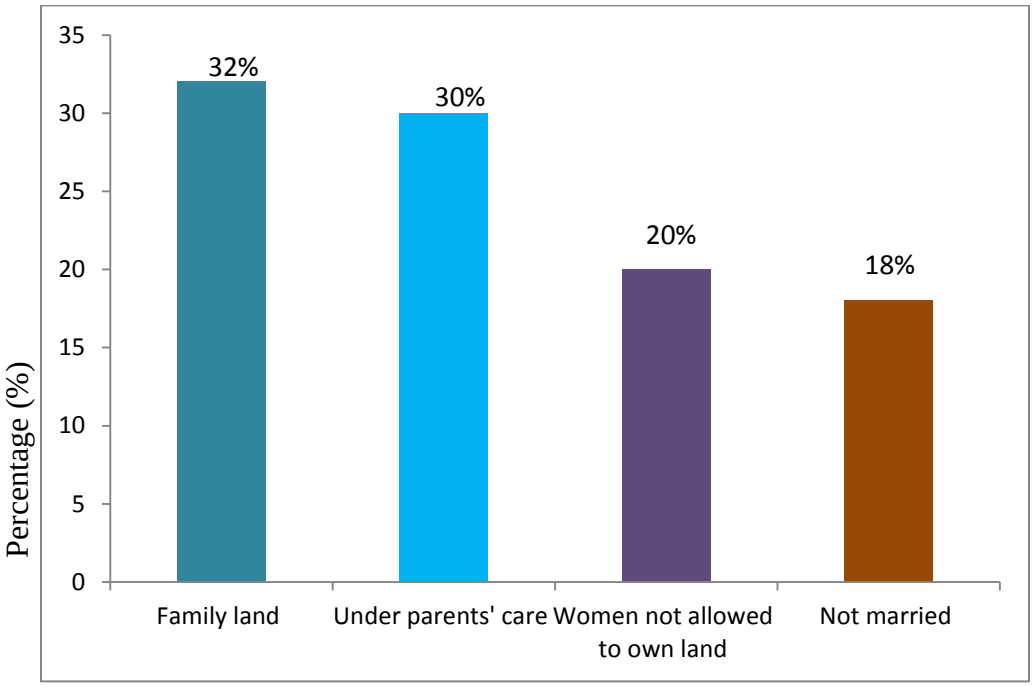


Figure 17: Reasons for not owning land title deed / allotment number

Source: (Author,2015)

From the Figure 17, 32% of respondents said they use family land, 30% said they are still under parents care, 20 % said women are not allowed to own land while 18% of respondents said they are not married that is why they do not own land title.

The implication is that majority of respondents use family land and the land title is not theirs but for the family. Minority said that they do not own land title deed or allotment number because they are not married and according to their culture married women are not entitled to own land. This implies that they cannot use it as collateral to secure loans to boost their agricultural production or supplement their business ventures to better their livelihood.

4.6. Cultural factors that affect women access to land

Factors	SA	%	A	%	SD	%	D	%	Total
Marriage status	16	21.33	36	48	0		23	30.67	100.00
No children	10	13.33	48	64	0	-	17	22.67	100.00
Traditional beliefs on working women	6	8.00	16	21.33	8	10.67	45	60.00	100.00
levels of income	26	34.67	33	44	6	8.00	10	13.33	100.00
levels of education	23	30.67	30	40	2	2.67	20	26.67	100.00
Male dominance in decision making	22	29.33	30	40	0	-	23	30.67	100.00
Inheritance practices	18	24.00	36	48	0	-	21	28.00	100.00
Women attitude towards work	8	10.67	36	48	0	-	31	41.33	100.00
Religion	0	0.00	6	8	8	10.67	61	81.33	100.00

Table 2: Cultural factors that affect women access to land

Source: (Author, 2015)

Key:

SA - Strongly Agree.

A -Agree

SD -Strongly Deny

D - Deny

The Table 2 demonstrates the perceived effects of cultural factors on women access to land i.e. how cultural factors influence land women land access and ownership.

From the table above 48 % of respondents agreed that marriage status among women affected their access to land, 64% agreed that women without children are not allowed by their families and communities to own land while 60 % of respondents disagreed that traditional beliefs on working women have impact on the cultural place to own land. From the table 44% of respondents agreed that income levels among women play a big role in the land access rights in the sub-county.it also shows that 40 % of respondents agreed that education levels and male dominance in the decision making process in the area affect women access to land. Only 48% of respondents agreed that inheritance practices and women attitude towards work affects negatively their access to land. According to the table 81% disagree that religion denies women the rights to access land. The coefficient variation of Cultural factors that affect women access to land is as indicated below.

$$cv = \frac{s}{\overline{x}} \cdot 100\%$$

Where: CV - Coefficient of Variation, S – Standard Deviation and the denominator is the mean.

CV = 0.98/2.89 X 100% = 33.91%

This means data has less variability and high stability. This implies that cultural practices play a significant part in affecting women's access to land and this affects their right to use the land freely to boost their agricultural productivity and this becomes impedance in addressing food security consequently affecting women's economic empowerment.

4.6.1. Respondents' daughters and sons have equal rights to inherit father's land/any other property

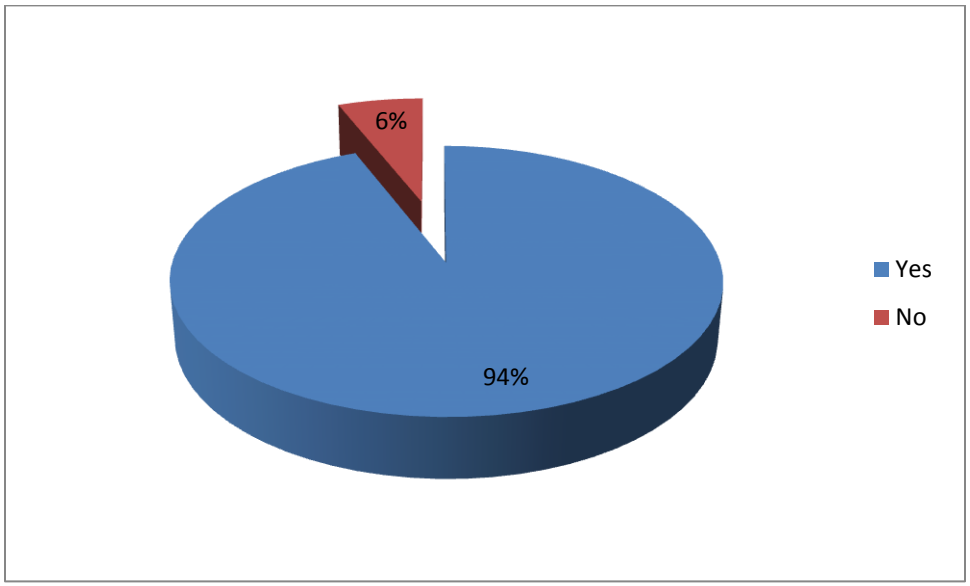


Figure 18: **Respondents' daughters/ sons have equal rights to inherit father's land / any other property**

Source: (Author, 2015)

The Figure 18 shows that 94% of respondents agree that their daughters and sons have equal rights to inherit father's land/ any other property and only 6% of respondents who said that their daughters and sons have no equal rights to inherit their father's land/ any other property. This implies that a larger percentage of respondents are aware that both daughters and sons have equal rights of inheriting father's property but due to the cultural factors that govern the society around this area sons are given more priority and daughters are looked down upon therefore they have little say on the use of the land thus their decisions on land use do not count therefore they cannot make any agricultural production decision despite their knowledge thus being rendered more powerless.

4.6.2. Reasons for daughters and sons not having equal right of inheriting father's land

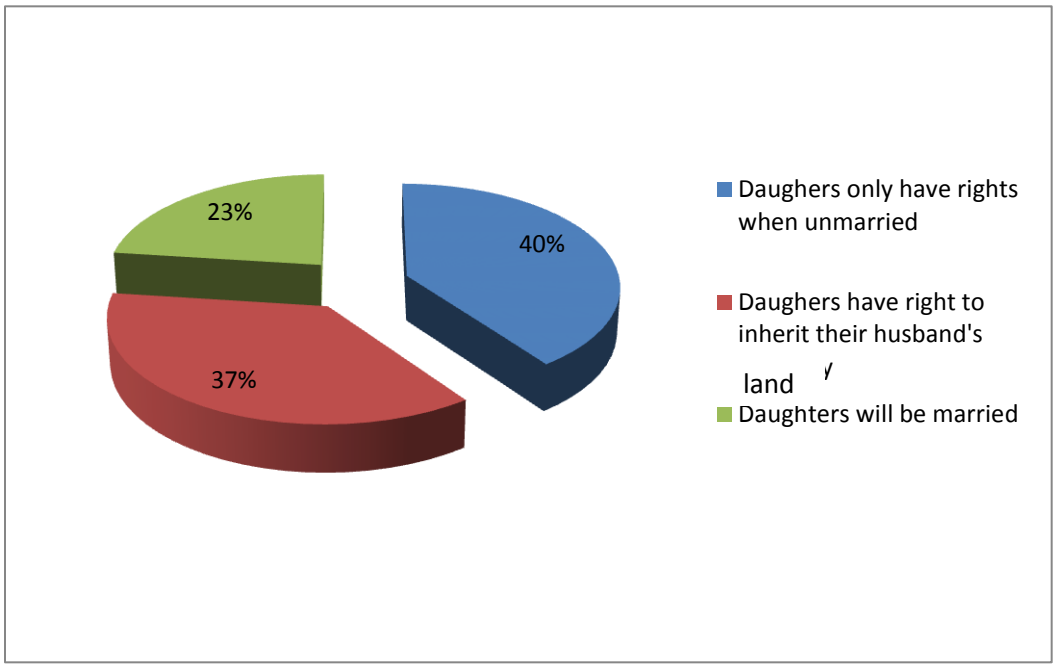


Figure 19: Reasons for daughters and sons not having equal right of inheriting father's land

Source: (Author, 2015)

Figure 19 shows that 40 % of respondents said daughters have only right to inherit father's property only when not married.the figure also shows that 23% daughters will be married and they should not inherit father's land while 37 % said daughters have rights to inherit husbands land where they are married and not their fathers' land. This implies that a large percentage of the respondents agrees that daughters have rights to inherit father's land when not married.

4.6.3. Awareness of a law that allows women inherit husband's property

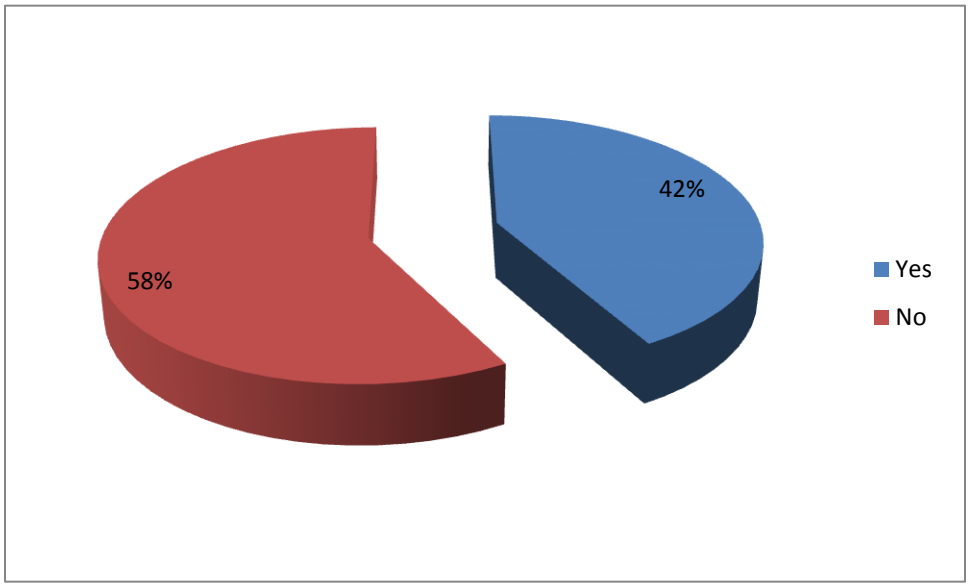


Figure 20: Awareness of a law that allows women inherit husband's property

Source: (Author, 2015)

Figure 20 shows that 42% of respondents are aware of the law that allows women inherit husband's property while 58% of respondents are not aware of such law. This implies that majority of respondents are not aware of any law that allows women inheritance of husband's property. This is much fueled by patriarchal organization of the communities residing in Mwala Sub County.

4.6.4. How women land ownership / access influence house food security in Mwala sub-county

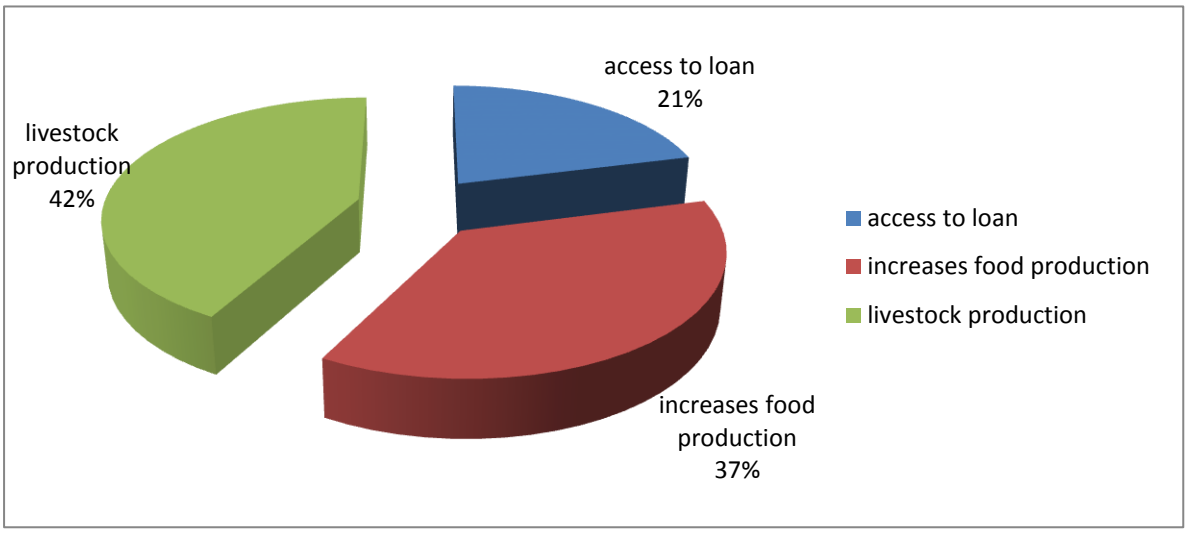


Figure 21: How women land ownership / access influence house food security in Mwala sub-county

Source: (Author, 2015)

The Figure 21 shows that 42% of respondents acknowledge that women land ownership / access has helped in livestock production in the area, 21% said it has enabled them to access loan for doing business and farming, 37% said women land ownership / access has increased food production. This implies that women's land ownership / access has helped many women to increase food and livestock production in the area especially those who own / have access to land. According to one of the respodents, those without land lease from neighbours at a very high cost whereby after harvesting the cost of production outweighs the returns.Therefore they end up in a vicious cycle of food insecurity and poverty. Most of the respondents interviewed agreed that land ownership / access among women is key towards food security in the area. Those without access to land venture into agricultural produce buying and selling business characterised by unstable markets. As a result they end up earning low income; forcing them to save little if any as they invest in other ventures commonly known for their low productivity.

4.7. Household facilities and Food Security

4.7.1. Respondents' suggestion on strategies to improve house hold food security in Mwala

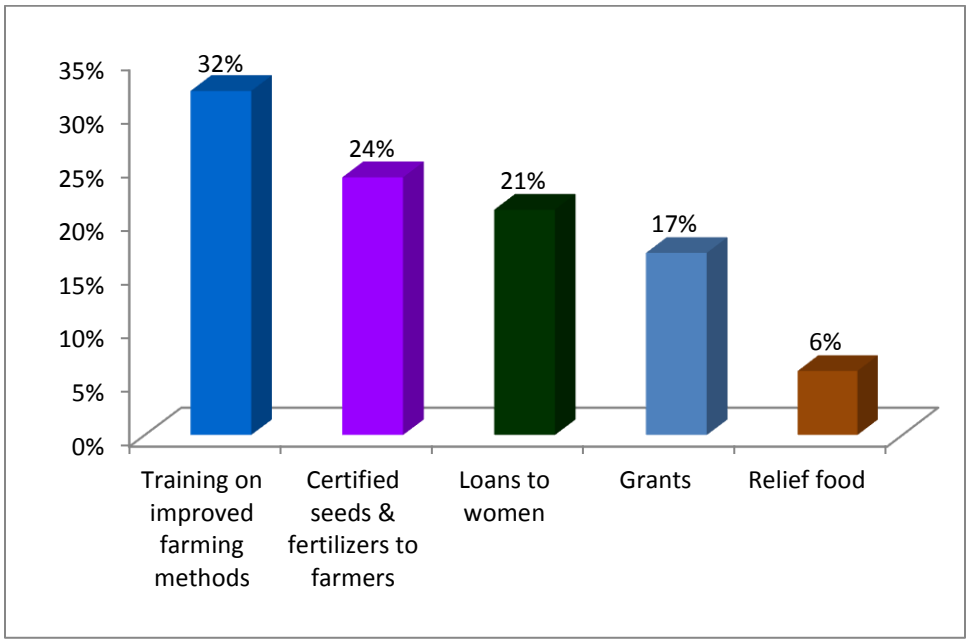


Figure 22: Respondents' suggestions on strategies to improve house hold food security in Mwala

Source: (Author, 2015)

The Figure 22 shows respondents' suggestions on strategies to improve food security in Mwala sub County. It also shows 32% suggested that government should provide training on improved modern farming methods and enough water for irrigation, 24% suggested supply of certified seeds and fertilizers to farmers, 21% suggested that the government should avail loans to women, 14% suggested that government should increase Uwezo fund for women borrowing while 6% suggested relief food. This implies that majority suggest training on improved modern farming methods to women farmers so as to improve food security in the area.

4.7.2. Respondents' household access to the certain household facilities

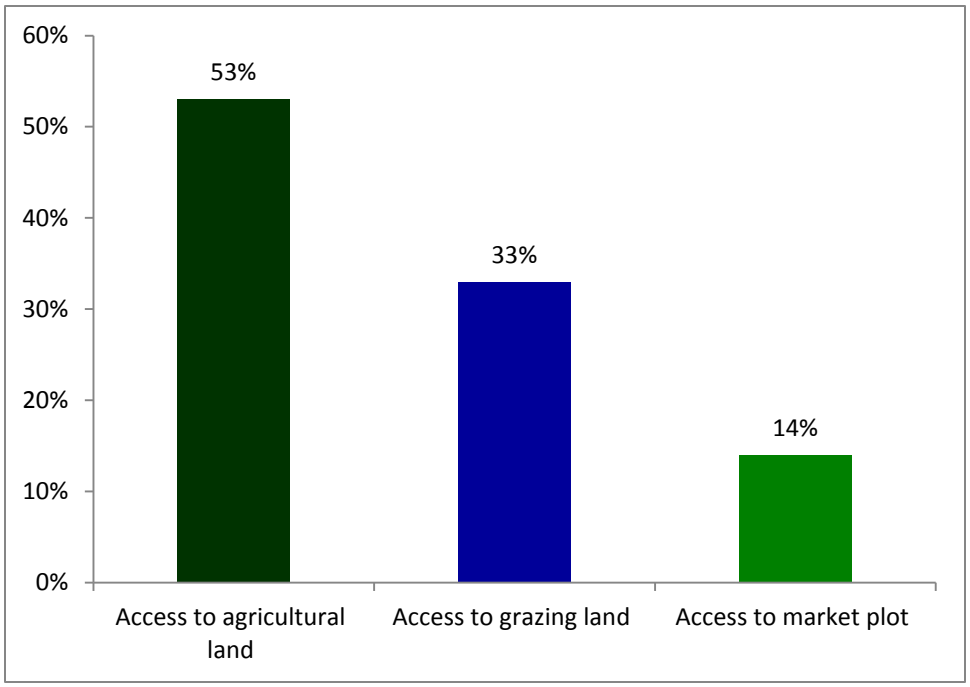


Figure 23: Respondents' household access to the certain household facilities

Source: (Author, 2015)

The Figure 23 shows respondents' household access to agricultural land, market stalls, grazing land and water source while 45% of respondents have access to agricultural land, 25% have access to grazing land, 10 % have access to market stalls while no respondent with access to water source. This implies that majority have access to agricultural land and no one with access to water source. According to Mwala sub county agriculture officer, "the area lacks water and if water can be availed to women, who are hardworking and industrious food insecurity, would be a thing of the past". Though a large percentage has access to agricultural land / livestock land, the rainfall in the area is quite unreliable, therefore this translates to low agricultural production hence food insecurity.

4.7.3. Women role in ensuring house hold food security in Mwala

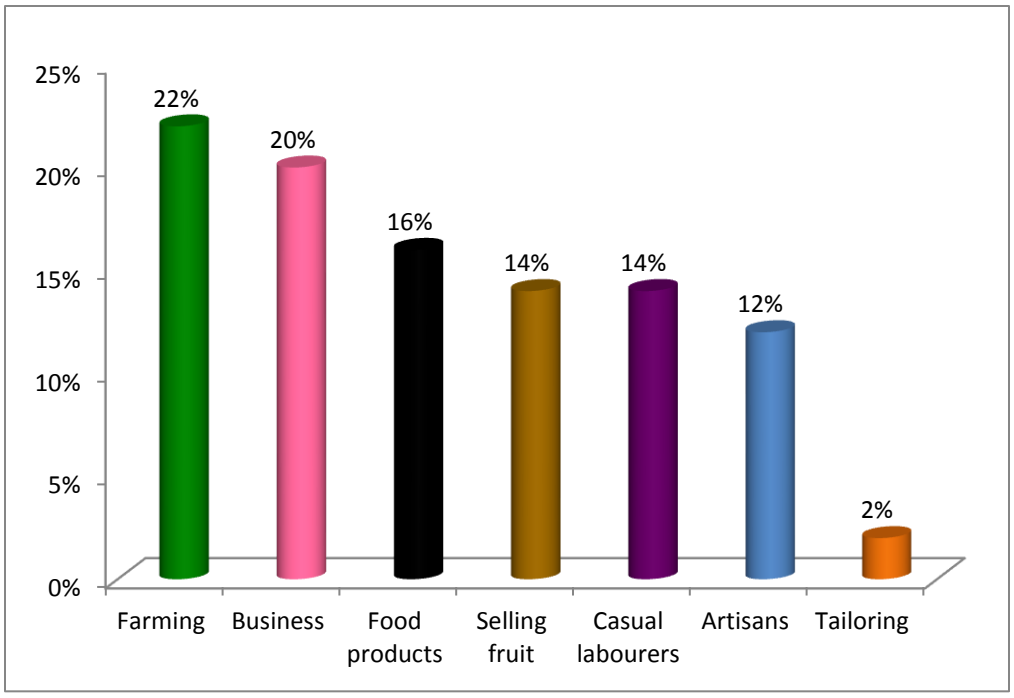


Figure 24: Women role in ensuring house hold food security in Mwala

Source: (Author, 2015)

The Figure 24 shows women role in ensuring food security in Mwala whereby 22% of women were doing farming, 20% were doing business, 16% traded in food products, 14% were casual labourers, 14% traded in fruits, 2% were doing tailoring while 12% were artisans. This indicates that majority of women in mwala were doing farming. Through observation, women doing business and farming were doing it in a small scale just targeting the local market. As Sara Wambua one of the respondents asserted while arranging her products in makeshift Kiosk along Mwala-Kithimani highway , "I buy tomatoes, kales, onions, oranges and Mangos from farmers around the sub county and sell to my fellow community men and women".

4.7.4. Respondents' ownership of assets

Items	No of respondents	%	Quantity	Mean
Sheep and goat	65	86.67	189	2.91
Iron sheet roofed house	69	92.00	134	1.94
Water tank	31	41.33	18	0.58
Cattle	49	65.33	72	1.47
Car	4	5.33	4	1.00
Bicycle	28	37.33	28	1.00
Motorcycle	21	28.00	10	0.48
Chicken	75	100.00	682	9.09
Other farm animals	4	5.33	2	0.50

Table 3: Respondents' ownership of assets

Source: (Author, 2015)

Table 3above shows respondents' household assets 86.67% have sheep and goat, 92% have house with iron sheet roof, 41.33% have water tanks, 65.33% of respondents have cattle, 5.33% have car, 37.33% have bicycle while 28% own motorcycle. 100% respondents own chicken and 5.33 keep other farm animals. This implies that each household in the area keep chicken and minority of the respondent own cars. The chicken kept is of indigenous breed whose return rates are minimal as compared to the hybrid chicken. The average number of chicken kept per household is 9 and done in a free range method of farming. The coefficient variation of respondents' household assets is as indicated below.

$$cv = \frac{s}{\overline{x}} \cdot 100\%$$

Where: CV - Coefficient of Variation, S – Standard Deviation and the denominator is the mean.

CV = 1.13/2.02 X 100% = 55.94%

This means the data has high variability and less stability thus impacting negatively on household food security.

4.7.5. Respondents' household changes witnessed over the last ten years

Outcome	Yes	%	No	%	Total
Increased Income	24	32.00	51	68.00	**100**
Improved living standards	20	26.67	55	73.33	**100**
Reduced vulnerability	14	18.67	61	81.33	**100**
Improved food production and preservation	22	29.33	53	70.67	**100**

Table 4: Respondents' household changes witnessed over the last ten years

Source: (Author, 2015)

The table 4 above shows respondents' household changes witnessed over the last ten years. 68% of respondents said their incomes have not increased in the last ten years while 32% said it has increased , 73.33% said their living standards had not improved while 26.67% said it had improved , 81.33% said their vulnerability has remained high while 18.67 said their vulnerability has reduced. 70.67% said their food production and preservation had not improved while 29.33% said their food production and presrvation had improved. This implies that overally the last ten years household income, living standards, vulnerability and food production and preservation has not improved but deterioarated. During data collection exercise, the researcher came across several children and elderly persons exhibiting malnutrition signs and symptoms.

CHAPTER FIVE

5.0. CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents a summary of major findings, conclusion and recommendations.

5.2. Summary of Major Findings

Majority of respondents interviewed were farmers and the few casual laborers. However, most of them had primary school education level and no respondent had a degree or diploma education level. Cultural factors play a great role in determining women land ownership / access. The culture dictates women rights to use the land, and in most cases their powers are controlled as far as land ownership / access and use is concerned and therefore this continues rendering them and their households vulnerable and food insecure.

The respondents who were married did not directly translate that they owned or had access to family land to practice agricultural activities because they are dictated by some cultural factors as far as land ownership / access is concerned. Therefore these cultures malpractices continue making their households food insecure. The least 10% of the respondents were divorced and this means that they either live in plots or have access to small pieces of land of their own or given by their families and this makes them more vulnerable and food insecure; for example, 48 % of respondents agreed that marriage status among women affects their access to land while 64% agreed that women without children are not allowed by their families and communities to own land.

Among the respondents who own land, 38% own two to three acres of land and only (4%) had six acres and above but a few of them have title deeds and allotment numbers. Therefore majority cannot access loans using their land as collateral to scale up their food production ventures and it also implies that they cannot do large scale farming. The reasons for not owning land title deeds is because majority of women use family land for farming and those married, titles are under their husbands' names. The small acreage of land they own cannot afford them sustainable food production.

Copeland and Guertin (2013) asserts that the right to own, control and access land is fundamental to both food security and gender equality. According to the study findings a large number of respondents are aware that both daughters and sons have equal rights of inheriting father's property. This is not practiced entirely because of cultural factors where daughters who are not married are allowed to inherit their fathers' land. This to some extend has denied women opportunity to inherit land from their fathers to improve their economic well being.

Many (40%) women in Mwala are doing farming and 26% poultry keeping although in small scale. This is a clear indication that many of the women are living in poverty. These women keep an average of 8 chicken which can not give them high returns and cushion them against harsh effects of drought in the area. These women are not managing these economic ventures effectively as they have not received any training on the same. For the few who have received training they are now expanding their business venture to new markets and keeping good records for effective management. Though trainings on agricultural ventures are being conducted by the governemnt in the study area, few grasp the concepts to practice because of their low levels of education. A large number of the respondents lack ability to manage food production ventures; 64% could fairly manage while 23% not very good. Accoridng to the researcher's observation most of them use traditional preseravtion methods hence their agricultual products do not last long.

Machakos County Government and Kenya National Government have put several measures to improve women food security in the area. These measures include training on improved farming methods and business management, provision of relief food, supply of certified seeds and fertilizers to farmers, introduction of uwezo fund for giving farmers loans through Agriculture Finance Corporation. Even though this is done by government it has born no fruit as unreliable rainfalls, small plots of land unsuitable for farming and high illiteracy levels keep on undoing these efforts.

5.3. Conclusions

A large number of the respondents (67%) agreed that unreliable rainfall is experienced in Mwala Sub-county. The greatest effects of inadequate rainfall in Mwala are that most women 34% have not been able to save much because most of their earnings have been directed towards purchasing food. The other effect has been disposing of the assets which they own, for example, chicken to get money to buy food related items. Since most of them depend on farming for survival, when their farming or agricultural ventures fail to thrive they have little to sell to cater for their children's fees and therfore children end up dropping out of school. Rainfall inadequacy also leads to poor food production and this translates to food insecurity. Due to unreliable rain in Mwala sub county women practicing crop farming and other agricultural ventures get small returns on their ventures.

The study shows that a large percentage (58%) of the respondents have not received training on management of agricultural production since most (87%) of the respondents can not manage their ventures very well and even the respondents who have received training use rudimentary tools in their ventures. Many of the respondents have low education levels and only few women have received training on how to improve their agricultural production. This has hindered their food production and productivity. The government has tried to offer them training on improved farming methods and techniques but this has only reached few women in the area. The study findings also reveal that the respondents who had received training had benefitted in the fact that they were able to expand their agricultural business ventures to new markets, diversified their agricultural ventures as well as proper keeping of records (69%); improved farm yields, enough food for their families and acquired high profits from their agricultural ventures (31%).

Despite their multiple roles at the household level, women play a key role in household food security in relation to availability, access, utilization, and sustainability. Their role in food security is now being recognized, and especially the major issues of their rights and access to resources which influence their ability to produce food and ensure household food security (World Bank, 2008; FAO, 2011). According to study findings majority of

them have access but do not own land title deed or allotment number and therefore are unable to access credit to scale up their agricultural production.

Majority of women in Mwala Sub County are food insecure and poor. This situation is attributed to various factors such as cultural factors that make them more vulnerable to food insecurity and poverty. Although the position of women in the agricultural food supply chains is critical, they encounter many obstacles due to restricted land rights, inadequate education and outdated social traditions which usually limit their ability to improve food security status for their households and communities at large. Cultural practices have played a big role in hindering economic power of women in the area. Majority of women due to cultural factors do not have rights to own land and are unable to do farming in large scale. They have limitation when it comes to borrowing money from bank since they do not have title deeds which they can use as collateral for loans. Daughters have no place in inheriting fathers' property as it is assumed they will be married.The living standards of these women are characterized by low incomes and poor well being. Few women have access to land and this has helped them increase food and livestock production in the area even though not enough to feed the families up to the next harvesting season (Mbiuki, 2014).

5.4. Recommendations

Based on the findings of the study the following recommendations are made:-

1. Due to high illiteracy levels among rural women government and other stakeholders including civil societies should intensify informal training /adult education for women. This will enhance their understanding on socio-economic issues as well as be able to make informed decision towards their business development and food security measures.
2. Rural women in Mwala Sub County should be trained on improved modern farming methods. This training should include how to use drought tolerant crops/orphan crops, use of certified seeds
3. Government and other stakeholders including civil societies should create awareness to women on their land and property ownership rights to increase land tenure security.
4. The government should ensure that women owning land are issued with title deeds to enable them use these title deeds as collateral to access loans to scale up their agricultural production ventures.
5. The government should develop innovative policies and programs that provide homestead and farmland for rural landless.
6. The government should strengthen women land rights.

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APPENDICES

Appendix I: Questionnaire

Dear Respondent,

Thank you for your willingness to participate in this study. The study is aimed at analyzing the impact of Women perceived determinants on household food security in Mwala sub-county in Kenya. Please note that your responses are anonymous and confidential and you will not be individually identified.

Thank you once again for your participation.

Directions:

Please select only one most appropriate answer for each question where choices are given. After completing the survey please make sure that question numbers and answers correspond directly with those on the answer sheet. Your contribution to answering the questions will be highly appreciated.

Food security is the access by all people at all times to enough food for an active and healthy life. Ensuring food security entails meeting two conditions: that there is adequate food supplies available and that people have the ability to acquire food from their own production or purchase from the market. Food availability therefore does not refer solely to food self-sufficiency but is linked to incomes and purchasing power (World Bank. 2008c).

Section A: Background Information

1. Your Name: .....
2. Your Age: .....
3. Your Gender: ..... i thought your study is only cocerned with women?
4. What is your highest level of education? (Tick appropriately)

   Primary school education [ ]

   Secondary School Level [ ]

   Certificate/Diploma [ ]

University level of education [ ]

Others (Specify…….) [ ]

5. Occupation (Tick appropriately)

( ) House wife

( ) Farmer

( ) Business person

( ) Civil servant

( ) Casual laborer in Farms, industries sector etc

6. How long have you in Mwala Sub County?

Less than 1 year [ ]

More than 1 year but less than 5 years [ ]

More than 5 years but less than 10 years [ ]

More than 10 years [ ]

Section B: Information on perceived effects of rainfall on food security

1. Has the area experienced inadequate rainfall for the last three years?

( ) yes

( ) No

If yes, how did the rainfall affect locals' household food security?

---

2. If your answer above is yes, what do you think should be done to improve the situation?

Section C: Perceived effects of Respondents' Skills on food security

1. What kind of agricultural/ any other economic venture are you engaged in?

(Tick as many as applicable)

a) Running a retail shop □

b) Keeping poultry □

c) Vending food produce at the local market □

d) Commercial cultivation of produce □

e) Livestock farming □

f) Bee keeping □

g) Sand harvesting □

h) Trade in farm produce □

i) Horticulture □

j) Carpentry □

k) Crop farming □

l) Others (please specify) _____

2. How would you rate your ability and expertise in managing your current food production venture (s)?

a) Very Good □

b) Fair □

c) Not very good □

3. Have you received any training on how to manage your agricultural food products

Yes ( ) NO( )

4. If yes, how has that training benefitted you in terms agricultural food production or any other economic venture

(Tick as many as applicable)

a) I now get more profits from my business □

b) I now keep proper records for my business □

c) I have enough food my family □

d) I have expanded my business into new markets □

e) I have diversified my agronomic venture □

f) I have improved my yield □

g) Any other -

Yes ( ) NO ( )

Section D: Information on ownership/access of land

1. Do you own / have access to land?

( ) yes

( ) No

If yes how many acres----------

If your answer to question 1 above is yes do you have a title deed or allotment number

( ) yes

( ) No

If your answer to question one is NO please explain why

---

2. The following cultural factors are thought to affect women access to land.

Please tick the most appropriate

Factors	Strongly agree	Agree	Strongly disagree	Disagree
Marriage status				
No children				
Traditional belief on working women				
Level of income				
Level of education				
Male dominance in decision making				
Inheritance practices				
Women attitude towards work				
Religion				

3. Do your daughters and sons have equal right to inherit their fathers, property?

Yes ( ) NO ( )

If no explain

_____

_____

_____

4. Are you aware if the law allows women to inherit their husbands' property

Information on Agricultural/other economic ventures

5. Are you currently engaged in agricultural/other economic venture

Yes ( ) NO ( )

6. What are some of measures that have been adopted by government to improve on food security initiatives?

---

7. Please briefly tell us what you think could be done to improve your food security

_____

_____

8. Does the household have access to any the following facilities?
    - Agricultural Land
    - Grazing Land
    - Market Center Plot
    - Water source
    - Other specify_____

9. What role do women play in ensuring household food security in Mwala Sub County?

_____

_____

_____

10. Does the household own any of the following and in what quantities?

Item (s)	**Quantity**
Sheep and Goats	
Iron Sheet Roofed House	
Water Tank	
Cattle	
Car	
Bicycle	
Motorcycle	
Chicken	
Other farm animals	
Others specify	

Has the household witnessed changes over the last ten years in the following:-		
Outcome	**Yes/No**	**Why?**
Income levels		
Improved living standards		
Reduced vulnerability		
Improved food security		

11. Has the household witnessed changes over the last ten years in :

Appendix II: Key Informant Interviews Guidelines

Analysis of the impact of women related determinants on household food security in Mwala Sub-county, Kenya

Once the subject is seated introduce the study and then invite them to share their opinions on the questions that you will ask them.

Thank you for agreeing to talk with me, and for your participation in this project. I anticipate the interview will last about 30 minutes, and appreciate any information you can provide. This interview is important for the success of this assessment, and it will serve to augment our understanding on the impact of women related determinants on food security in Mwala and recommend some solutions that will improve living standards of the residents.

Please focus on Mwala in all your responses, and feel free to clarify anything I bring up that's not Clear.

1. How does rainfall trends witnessed affect household food security in the region

_____

_____

_____

2. Explain the strategies that can be adopted to address rainfall issues in the sub county

_____

_____

3. Discuss how women land ownership/access influence household food security in Mwala sub-county.

_____

_____

_____

4. What food production strategies are people in your sub-county applying to improve their household food security?

_____

_____

_____

5. Do women in Mwala have the necessary agricultural production skills to improve on household food security?

_____

_____

_____

_____

_____

_____

Some Guidelines to Remember

1. Allow the subject as much time and where they respond or veer to another question please do not stop them neither repeat the inquiry.
2. Allow enough time for responses and be precise in the questioning and seek confirmation that the subject has clearly been understood.
3. Jot down key responses and not in prose so that you can be sure to cross-check the completeness of the interview.
4. Do not spend too much time writing as to seem disengaged from the subject.