UNIVERSITY FOR DEVELOPMENT STUDIES

FACULTY OF AGRIBUSINESS & APPLIED ECONOMICS

DEPARTMENT OF AGRICULTURAL EXTENSION, RURAL DEVELOPMENT & GENDER STUDIES

EFFECTS OF ACCESS OF FEMALE FARMERS TO AGRICULTURAL EXTENSION SERVICES ON AGRICULTURAL PRODUCTIVITY IN THE TALENSI DISTRICT OF THE UPPPER EAST REGION OF GHANA

ANKOBIAH RICHMOND NANA

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(UDS/MIC/0002/17)

DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF SCIENCE (MSc) INNOVATION COMMUNICATION DEGREE

March, 2020

DECLARATION

Apart from the work of other writers which have been duly acknowledged, I hereby declare that this report is the outcome of my independent research under supervision.

NAME OF STUDENT	SIGNATURE	DATE
Ankobiah Richmond Nana (UDS/MIC/0002/17)	……	……..

I hereby declare that this work has been duly supervised in accordance with the guidelines and the standards of the University for Development Studies.

SUPERVISOR:	SIGNATURE	DATE
Dr. Nashiru Sulemana	……	……..

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The success of this work is through the support of some important personalities. I first thank God Almighty for His guidance and protection bestowed on me throughout this project.

My profound gratitude to my supervisor Dr. Nashiru Sulemana for his time, sacrifice and knowledge given to me to make this piece a success.

I also want to thank Master Patrick Adongo, Mr Mohammed (District Extension Director) for their warm reception and time during my data collection period in Talensi district.

I say thank you and may the Lord bless you all.

DEDICATION

I dedicate this work to the Ankobiah family, my wife for her relentless support and prayers throughout this time of my life. Thank you for being there for me through the various scenes of my life. You are forever cherished.

ABSTRACT

In Sub-Saharan Africa, agricultural activities have been the backbone of all economic activities. Agriculture has remained a major source of food and also the major determinant of the basic livelihoods in Sub-Saharan Africa. The sector contributes immensely to employment, GDP and export earnings in the continent. Women, who are the majority of the rural dwellers in Africa play a significant role in the agricultural sector which in most cases their contributions are downplayed. They contribute about 60%-80% of their time to every level of the agricultural line.

The objective of the study was to examine the effect of access of smallholder female farmers to agriculture extension services on productivity in the Talensi District of the Upper East Region of Ghana.

Talensi district was purposively selected because of its geographic location, in the Guinea Savanna Ecological Zone located in a semi-dry climatic region and its contribution to the food basket of the nation with the highest percentage of smallholder farmers. Simple random sampling was used to select respondents from the households. The sample size was determined to be 100 using the Yamane formula.

The research reveals that about 68.7% of the female farmers' in the Talensi District of the Upper East Region of Ghana were aware of the existence of the Agricultural extension officers in their districts. One of the factors influencing the access of female farmers to agricultural extension services is limited capacities of extension officers in the Talensi District of the Upper East Region**.**

Traditional beliefs and cultural set ups were also identified as factors that hinder female farmers' access to agricultural extension officers in the district.

It was revealed that women farmers in the district have limited participation in the management committees which also influences the level of access of the female farmers to the agricultural extension services.

The study therefore, recommended periodic stakeholders engagement with the women farmers' in the district to educate them on the economic potentials in farming activities and how they can make economic gains out of it to support their households better. The study also recommended that women farmers in the district should also be given some level of entrepreneurship training to help them change their mind-set of doing farming just for the consumption of their households.

Table of Contents

List of Figures

Lists of Tables

CHAPTER ONE
INTRODUCTION

1.1 Background of the study

In sub Saharan Africa, agricultural activities have been the backbone of all economic activities (AGRA, 2013). Agriculture has remained a greater source of food and also the major determinant of the basic livelihoods in Sub-Saharan Africa. The sector contributes immensely to employment, GDP and export earnings in the continent. Women, who are the majority of the rural dwellers in Africa in numerical terms, play a pivotal role in the agricultural sector (FAO, 2011). They contribute up to about 60% of the smallholder labour force in developing countries such as Nigeria, Ghana, Cameroon and Zambia (Ahmed *et al*, 2012). Estimation of their time contributions to the sector ranges between 60% and 80% in most parts of Africa. This makes them performing considerably the largest per cent of the agricultural activities ranging from processing to marketing (FAO, 2011).

Like the many regions in sub-Saharan Africa as stated above, agriculture has been the major contributor to the development and growth of Ghana's economy since independence decades of the 1960s. According to ilapi-ghana report (2017), the successive governments have since independence tried with several frantic efforts to make the sector the backbone for the growth of Ghana's economy. Such efforts saw the introduction of the Structural Adjustment Programme (SAP) in 1983 which brought some form of the moral booster in the sector. The SAP came along with a series of projects and policies that seek to have forward and backward linkages. Some of these policies and programmes birth schemes such as the Grains Warehousing Company, Cocoa Bill Financing Scheme, Grains Bill Financing Scheme. Others are the Wulgu Livestock Company , Agricultural Development Company (ADC) and Shai Hills Cattle Ranch (SEND-Ghana report, 2014).

The targets of most of the agricultural policies as indicated in the above often target peasant or the smallholder sector that employs a greater number of farmers in the country. The vision is to transform the sector into a sustainable commercial production that is anchored on improved market access. Prominent among such strategies found in the commitment of the government to investing at least ten per cent of annual budgetary resources into the agricultural sector. This vision takes a cue from the Maputo Declaration on agricultural and food security signed by some African Heads in July 2003. This translated into reality by successive government sinking whooping sums of budgetary allocation into the sector. For instance, the sector received a budget allocation of GHC395.19m in 2015, GHC355.14m in 2016 and 914 million for 2018 fiscal years (citifmonline.com/2017/11/17). It is therefore not surprising when many research points out to the effect that Ghana attained the MDG one before its target year 2015. SEND-Ghana report (2014) indicates that the total number of citizens living below the poverty line in Ghana has decreased from 31.9% as at 2005/2006 to 24.2% in 2012/2013 indicating a reduction of 7.7% as at December 2015.

Many researchers have it that women are the centre of all the success story of the smallholder farmers in Ghana. FAO (2011) also indicates that females are the major contributors consisting over 50% of the total labour in agriculture and contributing up to 70% of the total food production of Ghana. Despite this, the returns accruing therefrom seems to be skewed towards men to the detriment of the women. SEND-ghana report (2014) showed that men farmers have benefited more than women in most of the government programmes such as the Northern Rural Growth Programme, Youth in Agriculture Programme, the Fertilizer Subsidy Programme and the Agricultural Mechanisation Service Centre (AMSEC). This makes the future of women in agriculture dwindling. To further aggravate their plight, they are denied access to some key resources and information due mainly to socio-cultural factors.

1.2 Statement of the problem

Of all the efforts of Sub-Saharan Africa to improve its agricultural production, food production in the region is still far below the food needs (FAO, 2011). FAO (2013) estimated that about 21.2% of the people in Africa have been undernourished as a result of insufficient food production. Available literature pointed out that women who constitute the largest number in the sector are being denied equal access to production resources and opportunities needed to increase food crop yield as well as the land size (FAO, 2011). Mehra & Rojas (2008) indicates that if women in Africa are given same opportunities in terms of ownership of farmland, information and access to extensions services, Africa could reduce poverty by 20% to 30%.

In Ghana even though several interventions have been put in place to ameliorate such a bizarre situation, there still left a significant number of challenges that shackle the effectiveness of women participation in agricultural production (Karl, 2009). Several political, social and cultural factors stifled their right to access extension services (Boserup, 1970). These socio-cultural impediments have put undue pressure on their livelihood and impoverished them the more.

Global agriculture in recent times is technology-driven and therefore calls for a swift response to innovation. Responding to the global agricultural change, therefore, requires a significant drift of an improved extension service delivery. Extension services delivery is a crucial component in promoting agric innovations so as to keep pace with the changing context and to improve the livelihoods of the smallholder farmers. A recall of this has increased the demand for extension service delivery in Ghana tremendously following the fact that more women participation in the sector has increased overwhelmingly. Karl (2009) states that, smallholder farmers may improve their productivity when they get access to training or information on the best farming techniques or on new higher-yielding crop varieties. Statistics at the Ministry of Food and Agriculture (MOFA), however indicates that, the farmer to extension officer ratio

currently stands at one (1) Agricultural Extension Agent (AEA) to one thousand five hundred (1,500) farmers that is a ratio of 1: 1,500 which is far too low and some sources such as the report of SEND Ghana foundation quoting a far lower ratio of 1:3000 (SEND-Ghana report, 2014). Agricultural annual progress reports in 2013 indicated that out of the national agricultural extension service needs of about 3,909, only 2,068 were available and operational making as at December 2013.

This situation is even more pervasive among women farmers. Data from the agricultural extension services of Ghana shows that the agricultural extension coverage is not even uniform across geographical location and by sex. Mehra & Rojas (2008) revealed that the extension of service delivery in Ghana is complex and delivered in a complex environmental structure giving priority to gender relations. That is to say that extension service provision is more of male dominance occupation and generally address the agricultural needs of the male farmers. This situation mostly has cultural connotations particularly in the northern regions of the country. In many cultures in the north, male extension officials often finds it difficult to reach out to the female farmers due to social norms that prohibit female interaction with non-family men (PFA, 2013).

Conditions of this kind breed gender bias in society and degrade development in general. Such situations equally widen up gender disparities and in civilised societies can degenerate into conflict and gender-related chaos. However, Deeping into the literature shows that less has been done in the area of access of female smallholder farmers and its effects on productivity. Most researches concentrated on Women Farmer's and Agriculture Growth (Adeniyi, 2010), Women farmers Access to Agricultural Extension, Inputs and Credit Facility (Owololabi et-al., 2010), Access of Rural Women to Agricultural Extension Services, Opportunities and Challenges (Tesfaye, 2015) and Challenges women farmers face in accessing Agricultural Extension Services (Julie, 2015**).** This is what whips up the interest of the researcher to assess

the access of female farmers and its effects on productivity in the Talensi District of the Upper East Region of Ghana.

1.3 Objectives

1.3.1 Main Objective

To examine the effect of access of smallholder female farmers to Agric extension services on productivity in the Talensi District of the Upper East Region of Ghana

1.3.2 Specific Objectives

1. To assess factors that influence access of female farmer to Agric extension services in the Talensi District.
2. To examine the perceptions of female farmers on their current access to agricultural extension service.
3. To compare the productivity levels of female farmers at different levels of access to extension services.
4. To assess the challenges facing smallholder female farmers in accessing Agric extension.

1.4 Research questions

1. What factors influence the access of female farmers to agricultural extension services in the Talensi District?

1. How do female farmers perceive their current access to agricultural extension services?
2. What relationship exist between female farmers' access to agricultural extension and their level of agricultural productivity?

3. What challenges do smallholder female farmers face in accessing agricultural extension services?

1.5 Justification

It is important to note that to bring about agricultural development; equity in access to agricultural resources plays a pivotal role. Agricultural development programs are increasingly expected to yield income, provide nutrition, ensure food security and empowerment outcomes. Yet, little is known about how they affect or are affected by differential access to and control over agricultural inputs by men and women. It is important for policymakers to have a fair view of the gendered nature of agricultural resource accessibility and how this influences individual and household are essential to designing effective development policies and interventions. This work aims at assessing the access and challenges of rural women to Agric extension services in the Talensi district. The outcome of this will contribute to the existing literature on women and access to agricultural resources, thereby serving as a relevant material for future researchers. Also, it will help other policymakers to understand the challenges women go through in the access of basic agricultural information and will, therefore, formulate policies to address such for the equitable rural and national development in general. It will also bring to life evidence the contributions women make and the challenges they face in agricultural enterprises in Ghana and how the gender gap limits agricultural productivity, economic development and human well-being.

1.6 Delimitation

The work primarily will focus on the access and challenges of women on extension service in the Talensi District of the Upper East Region of Ghana. The vast cultural diversity of the people in the district has not to relent itself easy for equal access and ownership of basic resources thereby making it difficult to bridge the real mythology development gap between males and females. The district is inhabited by about 94,650 people with about 47,419 females

constituting approximately 50.1% (GSS 2014). The district shares boundary to the north by Bolgatanga Municipality, to the south by the West and East Mamprusi districts, Kassena-Nankana to the west and Bawku municipality to the east.

It is located in the guinea Savanna woodland vegetation consisting of short trees and shrubs with a variable amount of flora of grass. This vegetation is susceptible to agricultural activities and the inhabitants are mainly farmers. They are mainly food crops farmers with few among mostly the men rearing farm animals. The common food crops grown are maize, millet, sorghum, beans and soya-beans. Some few dwellers also cultivate groundnut, pepper, tomatoes and garden eggs usually in smaller quantities. The major source of the market is Tongo and Bolgatanga market. However, during the bumper harvest, they go to Tamale market, Techiman and sometimes Kumasi.

1.6 Organization of the study

This work consist of five major chapters. Starting from chapter one, the chapter will contain the background of the study, the problem statement, objectives which will be categorized into two; main objectives and specific objectives. The rest are the research questions, the scope of the study, and an overview of limitations and organization of the study. Chapter two will contain the literature review which will deal with major thematic areas such as the theoretical review, the empirical review and the conceptual framework. Chapter three will look at the research methodology in details; research design, data sources, the target population, sampling techniques, data collection procedures and techniques of data analysis. Chapter four will also contain data analysis and discussions of the major findings. Finally, chapter five will examine the final aspect of the work. It will contain the summary of findings, conclusion and recommendations deemed necessary by the researcher.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter seeks to review the literature on concepts and definitions, theoretical frameworks, conceptual frameworks and empirical evidence on the issues as identified by different writers on the access of smallholder farmers to agricultural extension service.

2.1 Concepts and Definitions

This part defines and gives a detail explanation of the major concepts used in the work. The agricultural extension service, productivity, concepts of development and smallholder farmers.

2.1.1 Agricultural Extension Services

MofA (2011/13), defines agricultural Extension Service as the *application of scientific research and new knowledge to agricultural practices through farmer education. The field of extension now comprises variety of communication and learning activities organised for farmers by experts from various disciplines which includes agriculture, agricultural marketing, health, entrepreneur skills, etc.* (MofA, 2011/13). (Agajie, 2015) defines extension as systems that facilitate the access of farmers', their groups and other market actors to knowledge, information and technologies; facilitate their interaction with partners in research, education, agribusiness, and other relevant institutions; and assist them to develop their own technical, organizational and management skills and practices .Institutions such as World Bank, however, affirm that agric extension approaches must be different than in the past, emphasising on policy frameworks for agric extension providers that might be effective in developing countries.

2.1.2 Smallholder farmers

According to DAFF (2012), the term 'smallholder' is often seen as interchangeable with terms such peasant farming, or low scale farming. Generally, the term smallholder describes farmers' limited resources as compared to other farmers in the same sector. Many have argued that one main characteristic feature of the smallholder farmer is the use of simple technology and tools for production. Santa (2011) posited that they are usually characterised by outmoded, simple technologies, low incomes and females playing an important role in the production. Peasant farmers differ in so many ways including resource distribution between food and cash crops, farm size, livestock, external inputs and hired labour, the proportion of food crops sold and household expenditure patterns (DAFF, 2012).

Smallholder farmers play an important role in livelihoods creation amongst the rural folks. Even though their production is important for household food security, the productivity of this sub-sector is quite low.

2.2.1 Agric extension service development in Ghana

Agricultural Extension Services can be traced back to the nineteenth century (1900) by the early missionaries. According to Ekepi (2009), the early agricultural extension services in Ghana started by the missionaries as well as the foreign-owned providers involved in the production of export crops such as cocoa, coffee and rubber. Since then, the country has tried various extension approaches including extension under the farmers' cooperative movement and several donor-assisted projects after independence (Frances, 2012). Agriculture extension services were provided through donor-funded projects such as the USAID funded project called Focus and Concentrate. These organisations provided both advice and inputs to the farmers.

The sector began full operation in the 1970s and 1980s when some departments under the Ministry of Food and Agriculture undertook separate extension services for their farmers. At the time separate boards and organisations such as Cocoa Services Division of Cocoa Board (COCOBOD) were formed to provide extension services in the form of technology transfer

and technical service provision to farmers (MoFA, 2002). Since the beginning of the 1990s, the DAEs adopted the Training and Visit (T&V) extension system nationwide. This extension initiative was supported by World Bank funding through the National Agricultural Extension Project (NAEP), which was implemented between 1992 and 1999**.**

2.2.3 Types of agric extension approaches in Ghana

Several extension approaches have been tried by sub-Saharan countries such as Ghana to improve the dissemination of agric technological processes. The following are the Agriculture extension models existing in Ghana.

2.2.3.1 The Training and Visit (T&V) Extension Model

Frances (2012) stated that, T&V model was duly launched in Turkey in the early 70s and then adopted in India and most African countries under the World Bank sponsorship programme in the late 70s and early 80s. T&V is one of the earlier approaches that focused on the transfer of technology using a top-down approach. In Ghana, this approach was adopted by the Department of Agricultural Extension Services (DAES) under the unified extension systems (UES) concept. It was adopted by the then Upper regions then followed by the Volta region. With this model introduced, existing extension organisations were asked to merge into one single national system.

By application, the approach differs from the general extension by its emphasis on frequent a regular visit to farmers, in-service training for staff, and improved extension management (MOFA (2011/13).

Ponniah et al (2008) asserted that, the T&V approach was implemented in areas where several farmers were cultivating on a small scale applying low-level technology.

2.2.3.2 Farmer Field School

According to MOFA (2011/13), the Farmer field schools model was introduced into sub-Saharan African in the mid-1990s. This model, unlike all others, present a participatory approach to learning, technology development and dissemination based on adult education principles such as experiential learning.

In practice, farmers meet regularly for the duration of an entire cropping season. They learn through observation on what they see on the field to discuss among groups what have been observed. Through group interactions, the participants acquires decision-making abilities and are empowered by learning leadership, communication and management skills (MOFA, 2011/13).

2.2.3.3 The Participatory Approaches

With this approach, the agric extension agents are expected to facilitate situational analysis by the farmers themselves at the start of their working relationship. Once farmers have identify causes of their problems and have identified the most pressing ones, the extension agents then help provide technical knowledge and technologies, which may be useful to address the problems identified. For this to work well, agric extension agents need not only to be experts, but also must possess good analytical and facilitating skills (en-ext).

2.2.3.4 Technology Transfer Model

Ponniah et al (2008) indicated that the Technology Transfer Model is a model practice so paramount to the development and spread of innovations to farmers. From the TOT perception, the transfer of scientific knowledge and skills from scientists to farmers will trigger development. Consequently, farmers will acquire scientific and modern technology through this model. This model assumes that institutions that possess modern knowledge can help solve farmers' problems. The agencies involved in this model includes the International Development

Agencies, the International Agricultural Research Institutions and the Advanced Research and National Agricultural Extension Agencies.

2.2.3.5 The Public Extension Model

This model involves the inculcating agric extension under the umbrella of the Ministry of Agriculture. Ponniah et al (2008) pointed out that, this model was practised widely by the colonial rulers and was passed on to their respective colonies. These models have over the years increased drastically in size following independence in the 1960s and 70s. These systems are now characterised by large scale systems which now faces basic operating funds. All efforts for reaching large population of farmers to serve their needs in terms of information and assistance appears to be limited. Decision-making and management are highly centralised and formalised.

2.2.3.6 The Private Sector Extension Model

This model as the name connotes is a privately provided extension service where the beneficiaries have to fully pay for the cost of service delivered. Under this model, the farmer is expected to pay almost all the cost associated to accessing agric extension with the hope that it will affect public extension cost to reduced. But there is little evidence to date that those peasant farms can buy their way out of poverty by paying for extension services (Ponniah et al, 2008).

The main aim of this approach is cost sharing. Frances (2012) argues that a cost-sharing approach is a participatory approach in which farmers are organised into associations. These associations then interact with extension personnel to identify their problems and solutions formulated.

2.2.4 Challenges of Extension Services Provision in Africa

Frances (2012) indicated that extension service delivery in Africa is challenged by several factors such as inadequate information, inadequate transportation equipment, and extension service staff among others.

2.2.4.1 Inadequacy of Transport Facilities

In most developing countries, there exist insufficiency of transport arrangements for agricultural and livestock extension services (Speranza et al, 2009). As a result, agriculture extension operators mostly use group extension approaches like Chief's Barazas (public meetings) in Kenya and farmer field days. Speranza asserted that, vehicles acguired recently by most extension departments are expected to solve the transportation burden of the extension services. Earlier, the extension officers had to either go by foot or on borrowed motorbikes and bicycles.

2.2.4.2 The Lack of Extension Field officers

Public extension staffs are not inadequate to meet the extension requirements and demands. There had been no hiring of field extension officers and those present do not have adequate transport. Speranza et al (2009) reported that during the last 15 years, the staffing and facilitation of public sector extension had declined mainly as a result of public employment embargos and reduced funding for operations and maintenance. In the public sector, for example, the ratio of frontline extension worker to farmers is about 1:1000 compared to the desired level of 1:400 (Speranza et al, 2009).

2.2.5 Challenges of agricultural extension service delivery in Ghana

SEND-Ghana report (2014) revealed that, extension services delivery is crucial in promoting agricultural innovation to keep up with the changing content and to improve the living of the smallholder farmers. Over the years, however, in Ghana, the demand placed on extension service delivery has increased manifold. Smallholder farmers can improve their output by

accessing information and techniques on the best farming practices, on new and higher-yielding crop varieties. However, the availability of such services remains low for both male and female. Female benefit less than male counterpart.

Data on extension services in Ghana show that coverage is not always uniform, and positions within the Agricultural Extension Directorate are not always filled, limiting the support farmers can receive. For example, as stated in the 2013 Agriculture Annual Progress Report, of the 3,909 Agricultural Extension Agents (AEAs) required in the Ministry of Food and Agriculture, only 2,068 are filled culminating in a very low AEA farmer ratio (1: 1,500) coupled with low AEA running motorbike ratio (0.5) (SEND-Ghana, 2014). A recent study by IFPRI shows that only 56 per cent of operational areas has assigned extension agents (Shaibu, 2013). Combined with a several households in the country, these small numbers of positions mean that on average, extension services need can't be met.

2.2.6.1 Socio-cultural Factors that hinder women participation in agriculture Extension Service

In recent times, Agriculture extension services have undergone a series of structural changes to incorporate a diverse group of people and to meet the needs of diverse groups of farmers, to explore market opportunities and funding constraints. Extension services encompass the wide range of services provided by experts in the areas of agriculture, agribusiness, health and others and are designed to improve productivity and the overall well- being of rural populations.

The sector over the years has worked to eliminate all forms of gender bias in its service delivery. In doing this, efforts have been made towards involving women in Agricultural Extension Trainings and programmes especially in developing countries. Within Agricultural Extension Training Institutions, women remain underrepresented as instructors, extension agents and researchers (FAO, 2004 Cited in MOFA, 2011/13).

In spite of all these, according to FAO (2004 cited in MOFA 2011/2013) survey of extension organisations covering 97 countries with sex-disaggregated data, only 5 per cent of all extension resources were allocated to women. Moreover, only 15 per cent of the extension officers were female (FAO, 2004).

2.2.6.2 Attitudes and Cultural Setup

According to Agajie (2015), attitudinal issues remain high in hindering women participation in development initiatives and access to agricultural extension service is paramount. In most African communities, women are often believed to be passive recipients of information and technologies. They are not encouraged to express their needs and priorities in public, or their voices are not often heard in public. Also, men in most parts of Africa are culturally not allowed to have a direct conversation with women who are not their wives (FAO, 2004). This prevents them from getting direct access to extension agents who are mostly men. Household chores sometimes limit women's movement making it harder for them to attend meetings and training away from home (FAO, 2004). Even though there are improvements over time, negative attitudes are still persistent at large not only at the levels of the community but also at different levels of implementers and officials. When training is offered in mixed groups, women feel embarrassed to speak in front of men. Men also spot those women as having petite manners who dare to speak in front of them (Agajie, 2015).

other circumstances where the extension agents cannot understand the local language and extension service delivery becomes problematic (Agajie, 2015).

2.2.7 The logistical challenges of Agricultural Extension Agents

Frances (2012) has identified nine major logistics of the extension agents as he considered the role of extension service in poverty reduction in some selected districts in the Ashanti region of Ghana. Main logistical challenges of extension agents as identified include an insufficient

number of motorbikes, pick-ups and bicycles to facilitate effective movements of extension agents to meet the extension needs of female smallholder farmers in particular in the hinterland across Ghana. To ensure the welfare of the extension agents in the field, extension agents in Ghana lack protective cloths and materials such as raincoats and wellington boots. Other logistics that facilitate the work of the extension agents left much to desire. Materials such as syringes and vaccines measuring tapes and other stationeries are equally almost non-existing (Frances, 2012).

Shaibu (2013) indicated that the inadequate logistics in the districts contributes to why extension services providers have not only been able to provide intensive extension services but also reach many farmers in the hinter areas in the district.

Table 2.1: Required and Available Logistics and their Variances in Ahafo-Ano South, Ejisu-Juaben and Atwima Nwabiagya

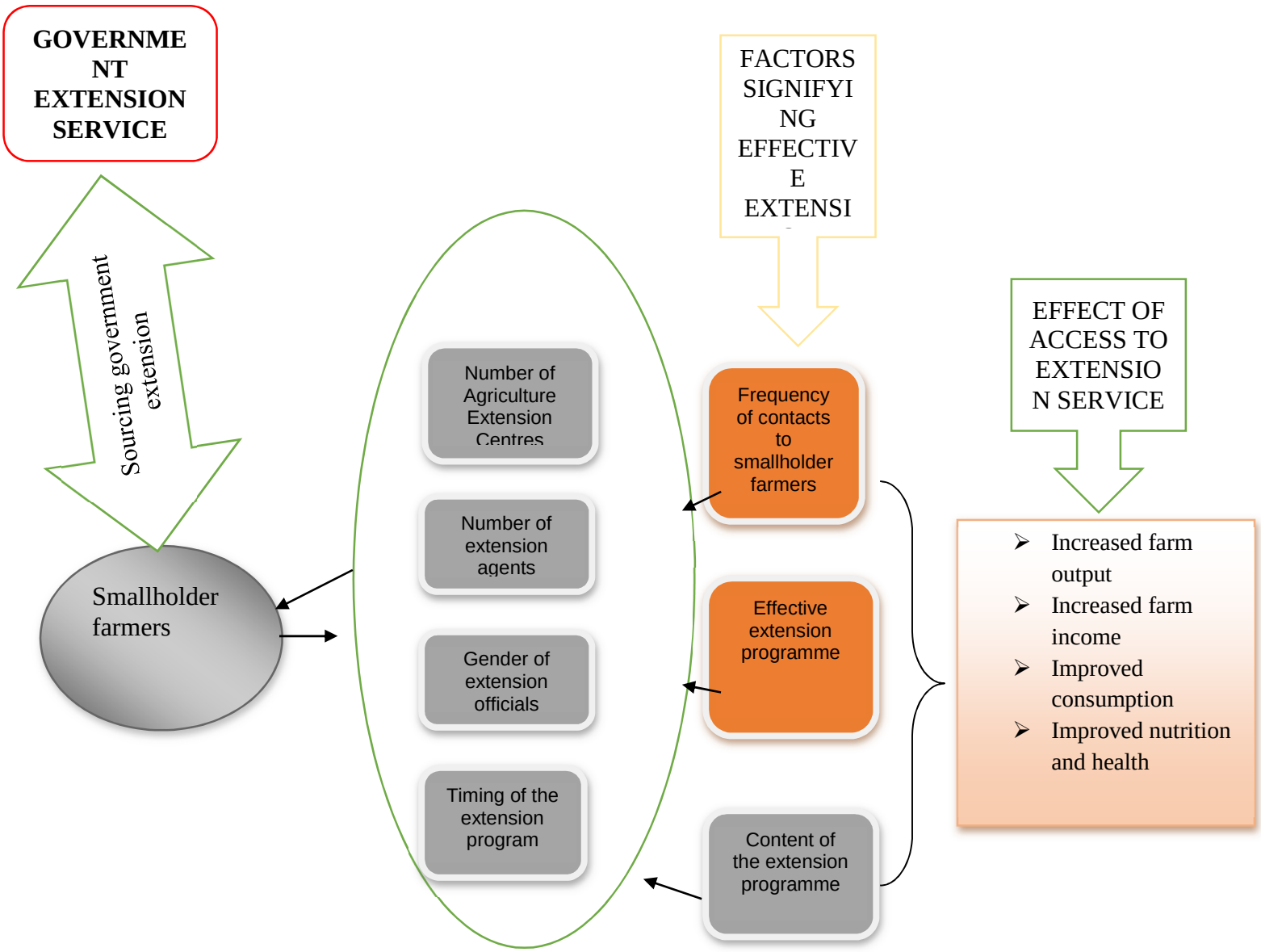
NO.	Logistics	Total logistics require	Logistics available	Variances
1	Motorbikes	72	31	41
2	Pick-ups	5	2	3
3	Raincoats	90	0	90
4	Bicycles	2	0	2
5	Extension uniforms	80	40	40
6	Notepads	80	80	0
7	Wellington boots	72	23	49
8	Vaccines and Syringes	100	30	70
9	Measuring Tapes	66	12	54

Source: Frances 2012

2.3 Conceptual framework

From the literature review, the study has revised a conceptual framework below. According to Santa (2011), 'Male and female Farmers' Accessibility to Governmental Agriculture Extension Program in Arghakhanchi District, Nepal' is not even. The study found that smallholder female farmer access to agricultural extension service is a dependent factor of several other factors and circumstances. That is to say that, the extent to which the agricultural extension services reach out too many smallholder farmers is a key factor for assessing the accessibility of the service. Studies have indicated that access to agricultural extension service has not been even among men and women in Sub-Saharan Africa (AGRA, 2013; Shaibu, 2013; FAO, 2004 and Santa, 2011). In effect, Agriculture extension programs have not been able to reach out to female farmers as compared to male farmers (Santa, 2011). The conceptual framework below consists of three chambers: smallholder farmers, factors determine smallholder access and effect of effective access to productivity. In the nutshell, stallholder female farmer access to agricultural extension service is determined among other factors by the number of Agriculture Service Centres available for smallholder farmers, several extension agents, the gender of extension agents, and timing of extension programmes and content of extension program message. The rest is the frequency of contacts made to smallholder farmers and the number of contacts made by extension agents within a given period. When all these factors made effectively, productivity in the area is affected as the female farmers constitute a greater proposition of the rural folks. According to the framework below, it will lead to an increase in farm output, increased income and improved nutrition and health (Santa, 2011)

Figure 2.2: Adopted conceptual framework



Source: Authors Construct (2019) from (Santa, 2011; Shaibu, 2013)

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter deals with the methods employed for the conduct of the study. It includes the research design, data sources, the target population, sampling techniques, data collection procedures and techniques of data analysis.

3.1 The study area

The Talensi district is among the newly created districts carved out of the then Talensi-Nabdam district of the Upper East region of Ghana. The district according to the 2010 population census stood about 81,194 with females constituting about 50.1%. The district according to the statistical service of Ghana is rural consisting of about 84%. Majority of the dwellers are into agriculture. The 2010 population and housing census reported that, about 90.7 % of all households in the district are into agriculture. In the rural area, 8 out of every 10 households (83.7%) are engaged in agriculture while in the urban areas, 15.5% of households are also into agriculture. Most households in the district (96.5%) are involved in crop farming. Poultry (chicken and Guinea fowl) are the dominant animals reared in the district. This district is selected because of its geographic location, in the Guinea Savanna Ecological Zone located in a semi-dry climatic region and its contribution to the food basket of the nation with the highest percentage of smallholder farmers (Shaibu, 2014).

3.1.1 Vegetation

The district is located in the Guinea Savannah woodland consisting of sparse short deciduous trees and a ground flora of grass. The major economic trees are Shea-nuts, dawadawa, baobab and acacia.

3.1.2 Climate

Talensi district is located in the tropical climate with two seasons; rainy season and dry season. The rainy season starts from early May to early October, and the dry season starts from late October to April. This means that the annual rainfall is about 95mm and ranges between 88mm-110mm. The district experiences a maximum and minimum temperatures of about 45 and 12 degrees Celsius from March to December.

3.1.3 Political Administration

The District Assembly consist of 35 elected members and 11 appointed members including the District Chief Executive (DCE) and the Member of Parliament for Talensi. There are 13 executive committee members who are responsible for the day to day administration of the district. In addition, they are 7 sub-committees with 3 Area Council members and 105 Unit Committee members which coordinate and initiate development programmes at the community level. The DCE who is the administrative and political head of the district is appointed by the president.

3.2 Research design

A research is categorised by purpose into three main categories namely; exploratory, descriptive and explanatory research (Saunders et al., 2011). Considering the nature and purpose of this work, descriptive type of research will be employed, using the survey method. In effect, this approach is used to discover a new phenomenon and to suggest new theories in the form of a hypothesis.

3.4 The study Population

Saunders et al. (2012) defines population as a full set of people or cases from which a sample is drawn. Also population is seen as ***the total number of units from which data can be collected, such as individuals, artefacts, events or organizations*** (Yin, 2009). According to the 2010 population and housing census, the district has an active female population of about 9,847 who are involved in agriculture. This research population takes into consideration all smallholder female farmers in the Talensi District. They include individuals and groups who receive some form of extension services as well as those who do not.

3.5 Sampling Procedures/Techniques

Sampling is defined as the process of a participant for a study from a set of participants or population (Yin, 2009). According to Yin (2009) before sampling is done during a research, the researcher base on other demographical features, identified who is qualified to be part of the sample. The main reason and objective of sampling is to deductively make an objective conclusion for the entire population and also save cost. Talensi district is purposively selected because of its geographical location in the Guinea Savanna Ecological Zone situated in a semi-arid climatic region and it is a food basket of the nation with the highest percentage of smallholder farmers (Shaibu, 2014).

Respondents will be identified and randomly selected to prevent non-scientific representation of respondents. Simple random sampling is employed to select respondents from the households within various houses where each respondent has equal chance of been selected for the study. This is done by using the lottery method where pieces of papers were used for respondents to be selected. Yes, or No will be written on the papers and rolled on to a container where each respondent will be asked to select one piece of papers. Those who will pick the papers with Yes and are willing to take part in the study will then be set to administer the questionnaires. This research is grounded on paradigm of perception where simple random sample will be used to provide them equal chances of being sampled (Saunders et al., 2012).

Also, key informants from the district agricultural office will be purposively identified and interviewed in order to get in-depth information needed for the study. The study will combine these different categories of respondents to ensure triangulation and verification of information to ascertain veracity of what officials say.

3.6 Sample size determination

The active female population in the district is about 9,847 who are into agriculture. Out of which a sample of one hundred and fifteen (115) respondents was deduced for the study. This means that on the average one out of every ninety eighteenth (98^{th}) smallholder women farmer was a respondent. This was deduced by applying Yamane (1993) formula with a maximum sampling error of 10%. The formula is given as n= N/1+N (e) 2 where

n = desired sample size

N= total population

e = margin of error (10%), Saunders et al. (2012)

The sample size (n) was therefore derived as follows;

n= (9847)/(1+(9847)*(0.1)2)

n= (9847)/(1+98.47)

n=9847/99.47

n=100

Therefore, the desired sample size would be 100. However, for the sake of uncertainty and probability of missing some respondents for the interview, the optimum size was increased to 115 (about 15%). Also the sample size will include five agricultural extension agents and the district director of agriculture making the total sample size of one hundred and twenty-one (121)

Table 3.1: Sample Size Distribution

Source	Sample size

Smallholder women farmers	With agric extension service	58
	Without agric extension service	57
District Agric extension officers	Agric extension Agents	5
	District Director of Agriculture	1
Total		**121**

Source: Authors construct (2018)

3.7 Types and Sources of Data

The study made use of the two sources of data namely primary and secondary sources. Saunders et al. (2012) stated that no single source of data has a complete advantage over the other and that various sources of data collection are highly complementary.

3.7.1 Secondary source of data

This is processed information that is readily available to be utilized by a researcher (Saunders et al., 2012). They include Published information available from other sources such as journals, articles, books among others. Secondary data sources for this study include; past and present publications on smallholder women farmers access of extension services in Ghana, journals, published books, internet information among others which were duly cited in the text.

3.7.2 Primary data

This provides first-hand information on the subject under study (Saunders et al., 2012). Primary data meant to be gathered any time there in no already existing data. Data gathered specifically in a current research project is primary data and which the researcher is the primary user (Creswell, 2003). The Primary data for this work was collected through questionnaires, observations, discussions and through interviews.

Figure 3.1: Sources of data

Level	Data source	Data collected	Methods of collection
Community	Smallholder women farmers	Challenges of smallholder female farmers in accessing agric extension services	Administered questionnaires
District	Agric extension Agents	Rate of access of smallholder female farmers to agric extension services	Administered questionnaires
District	District Director of Agriculture	Type of service delivery by the extension agents	Key informant interview

Source: Authors construct (2018)

3.8 Data collection tools

Research instruments/data collection tools are items use by the researcher to collect data for a research purpose (Kent, 2007). The nature of the research questions as used in this study requires the use of phenomenological approach to answer them. The phenomenological approach support to vividly explain theoretically and social constructs of peoples' economic and social life experience. This gives the researcher the opportunity to identify the interactions, feelings and other experiences of the subject. The following are some of the research instruments used for this work:

3.8.1 Questionnaire

The intended purpose for this work was to elicit information on the access of the female smallholder farmers on extension service in the Talensi district. In doing this, questionnaires were designed focusing primarily on the respondents' accessibility to the services of extension agents in the district. The questionnaires were also targeted the effects of the extension service

on the productivity of the women farmers in the area. Also questionnaires were designed for the extension agents to solicit information on their logistical challenges in meeting the extension needs of the women smallholder farmers in the area.

3.9 Data Presentation and Analysis

All data were initially coded and entered into a computer for further analysis. The software application used for the data analysis was SPSS version 21. Descriptive statistics was employed to analyse the socio-demographic characteristics of respondents, the benefits of MMT services to respondents and the challenges respondents face in using MMT services.

3.9.1 Factors that influence access of smallholder female farmers to agric extension services

Here, descriptive statistics will be used to identify the percentage of frequency of visits of the extension agents per cropping season. After which three likertt scales (always, rarely and never) was used to rank the level of compliance and finally Friedman Test applied to measure the significance of the level of visits.

3.9.2 Challenges of smallholder female farmers in accessing agric extension

In the literature review, some challenges of the district extension agents were identified. These challenges will be identified by the respondents through Likert three scale (agree, disagree and neither agree nor disagree). After which the respondents will be tasked to rank the challenges from one to the final number with number one indicating the most pressing challenge respectively. Finally, Kendall's coefficient of concordant will be used to test the level of significant agreement among respondents on the ranking of the constraints.

3.9.3 Significance of the extension service delivery to the productivity of smallholder women farmers

Independent two sample T-test will be used to compare the revenue data of those smallholder women who benefit extension service delivery with those who don't. Friedman Test will also be employed to test the significant level of the difference between those who benefit extension service with those who do not.

3.10 Validity and Reliability

Validity refers to the extent to which a test measures what it actually intended to measure (deVaus, 2002). Validity describes the extent to which the results correspond to the reality. One way to increase validity is to use various perspectives during the research study (deVaus, 2002). All the interviews and interaction with the respondents during the research will be done with the appropriate respondents who had the experience and basic knowledge of the research topic. This avoids subjectivity and enhances validity of any scientific research.

3.11 Ethical Considerations

During the data collection session, adequate measures were taken to explain to each respondent the purpose of the study and assured them of confidentiality of the information. Also respondents were very comfortable in giving responses because most of them were interviewed at their work places and others interviewed at the comfort of their homes to provide more convenience for the respondents. Questionnaires were giving to them to answer at their convenient times and those who could not read giving enough guide and time to be more convenient in responding to each question.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.0 INTRODUCTION

This chapter examines the data gathered from respondents in the Talensi District in the Upper East Region of Ghana and connect their responses to the objectives for this research work as outlined in chapter one.

Chapter four presents the respondents view concerning the topic: "Effects of Access of Female Farmers to Agricultural Extension Services On Agricultural Productivity in The Talensi District of the Upper East Region of Ghana".

Participants were educated and their consent was sought before administering the questionnaires. A total number of One Hundred (100) questionnaires were given out. Eighty-Six (86) questionnaires were received from women in various farmer groups under the Talensi District in Upper East Region.

RELIABILITY AND SIGNIFICANT LEVEL ANALYSIS

In order to ensure data presented in this research are significant and reliable, we calculated the p-values for each cross tabulated results presented.

The p of .000 means the results are highly significant. However, reporting p as .000 is generally frowned upon, because it suggests there was absolutely no (zero) chance of getting these results if the null hypothesis was true. But there is always some chance, however small. This is why we reported "p<.001" instead of "p=.000". Generally, p>=0.05 are regarded as being not significant and are not reported in this research.

SOCIO DEMOGRAPHIC CHARACTERISTICS OF FEMALE FARMERS IN TALENSI DISTRICT

The female farmers in the Talensi District are mostly married women based on the outcome of the research. The responses of the female farmers reveal that about 81.9% are married women

whiles about 18.1% are widowed. It was interesting to note that none of the female farmers were single as shown in the chart below:

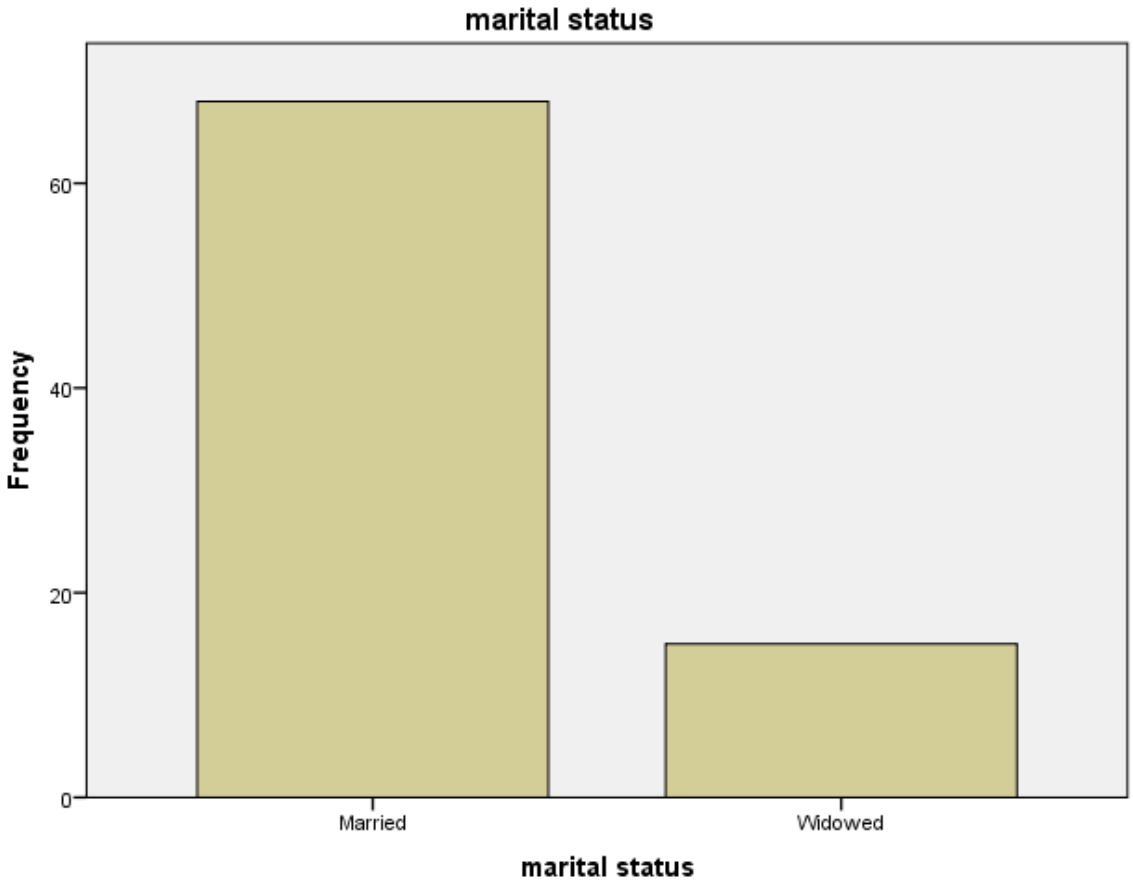


Figure 4.1: Marital status

The household size of the female farmers in the Talensi district are largely having between 6-10 occupants as the majority since about 67.5% of the respondents have household size of 6-10 per the outcome of the research. The household size of 1-5 has about 18.1% of the female farmers responding accordingly.

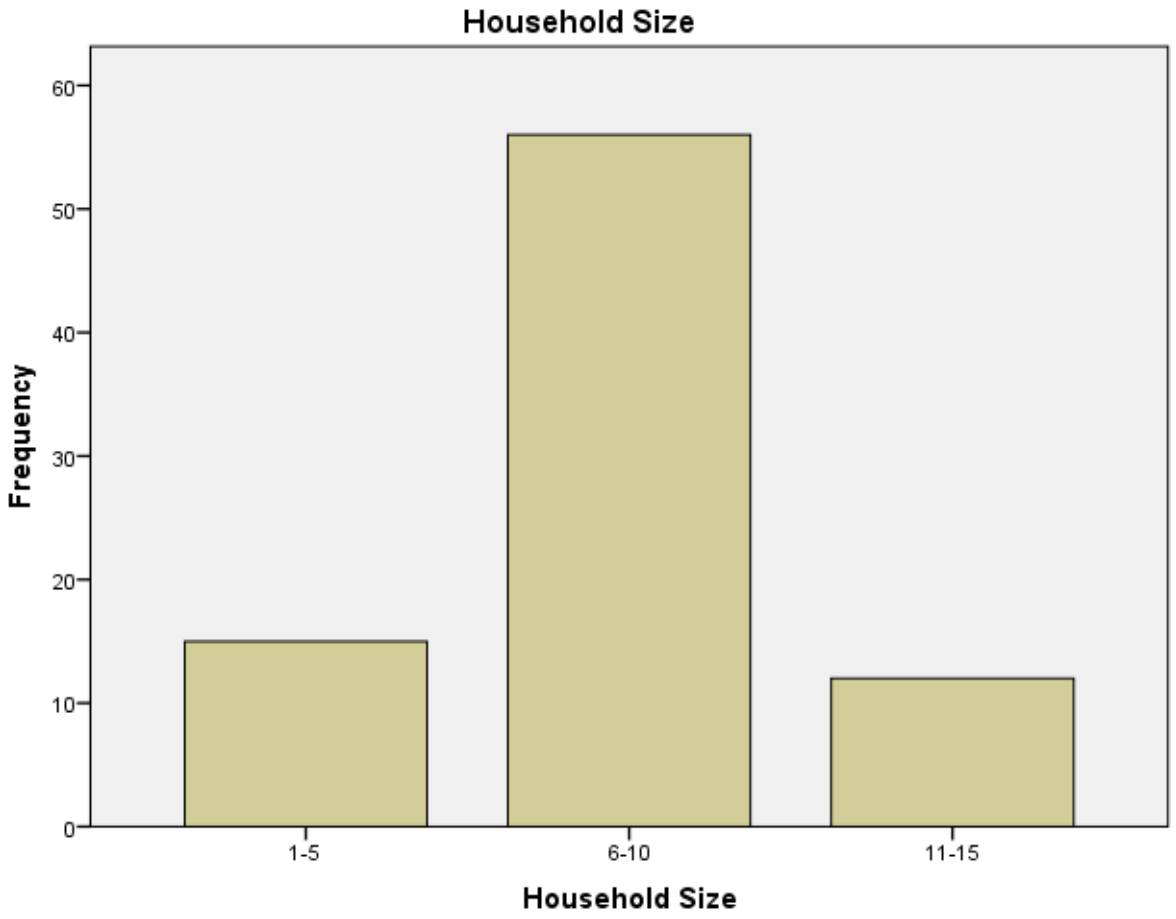


Figure 4.2: Household size

The occupation of the female farmers in the Talensi District are predominantly traders and farmers. About 56.6% of the female farmers are traders whiles the remaining 43.4% does only farming as their occupation. None of the respondents are engaged in any other occupation apart from these two occupations as revealed by the research.

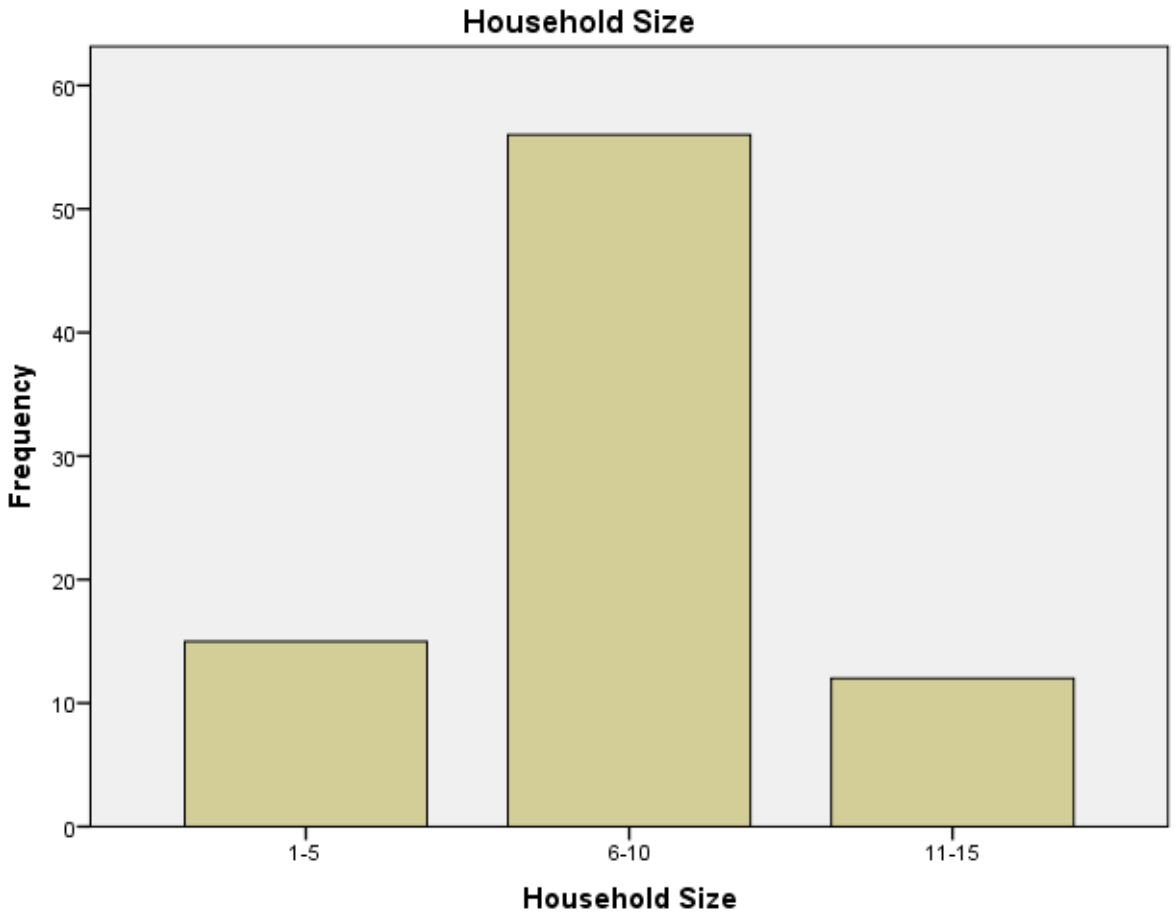


Figure 4.3: Occupation

The research reveals that there are three (3) main sources of income for the female farmers in the Talensi district. These sources of income are rent, Agriculture and trading. The rent constitutes about 30.1% whiles Agriculture and trading constitutes 45.8% and 20.5% respectively as shown in the chart below:

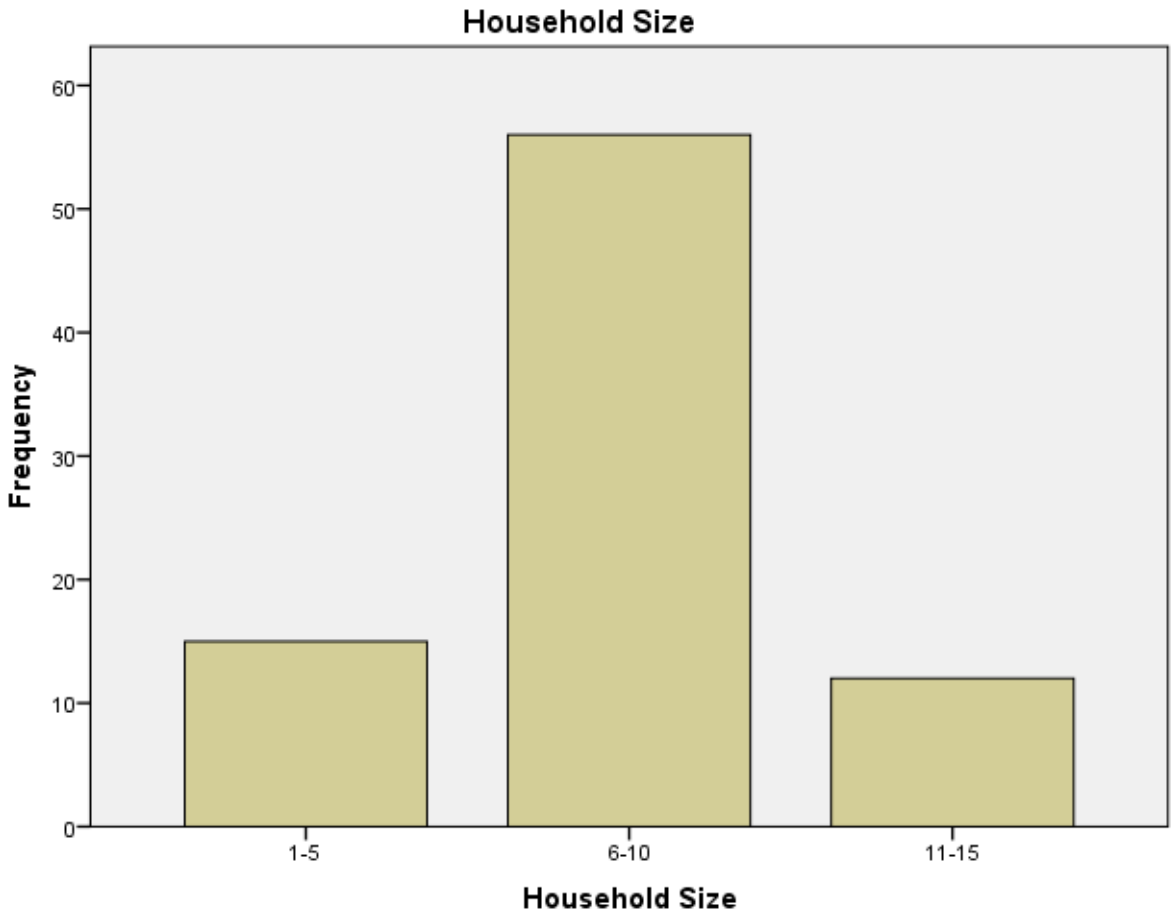


Figure 4.4: Source of income

The monthly income of the respondents was also investigated. From the data collected, about 83.1% of the female farmers make sales or having income ranging from 1-1000ghc whiles 14.5% of the female farmers have their monthly income ranging from 1001-2000ghc. The research further reveals that only 2.4% of the female farmers have monthly income ranging from 2001-3000ghc as indicated in the chart.

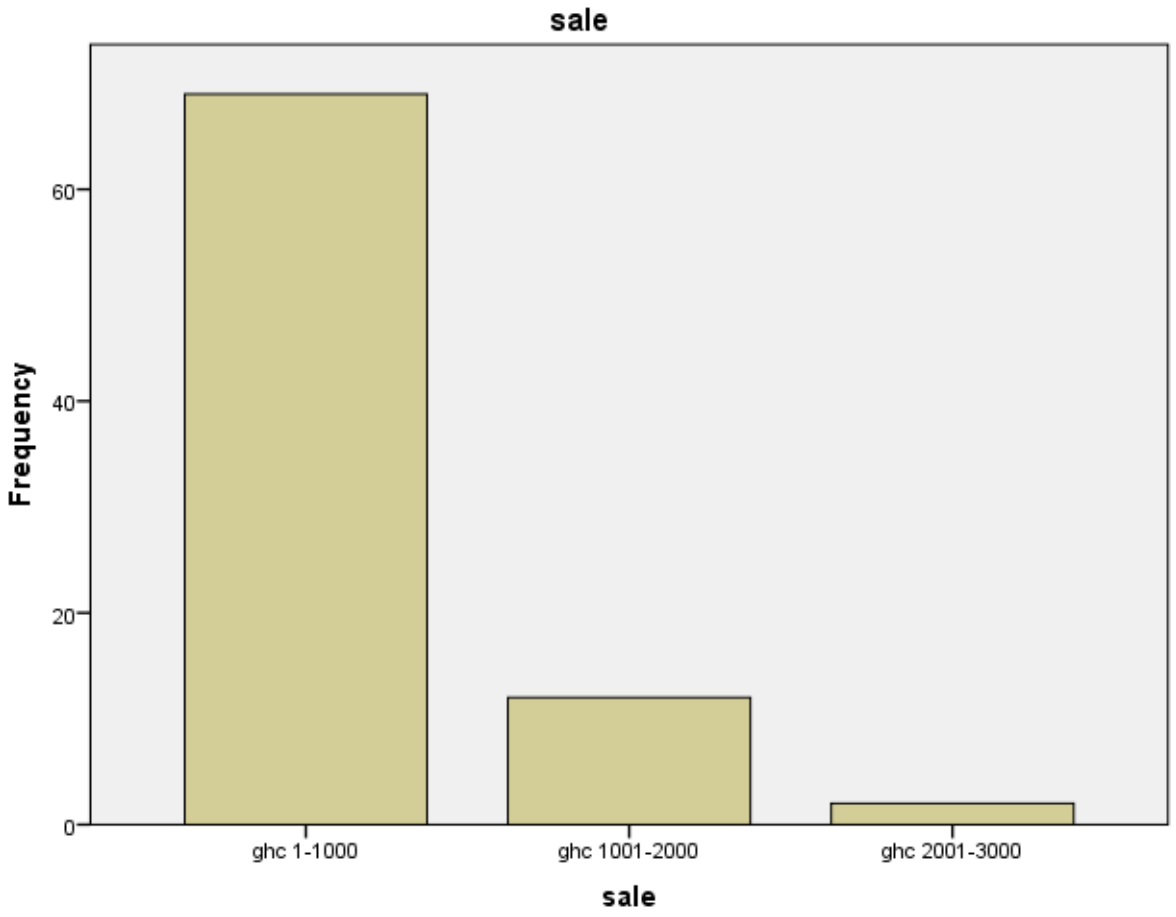


Figure 4.5: Sale

It is also worth reporting that about 72.3% of the female farmers in the Talensi District have monthly expenses ranging between 1-200ghc whiles 24.1% of the female farmers spend between 801-1000ghc monthly.

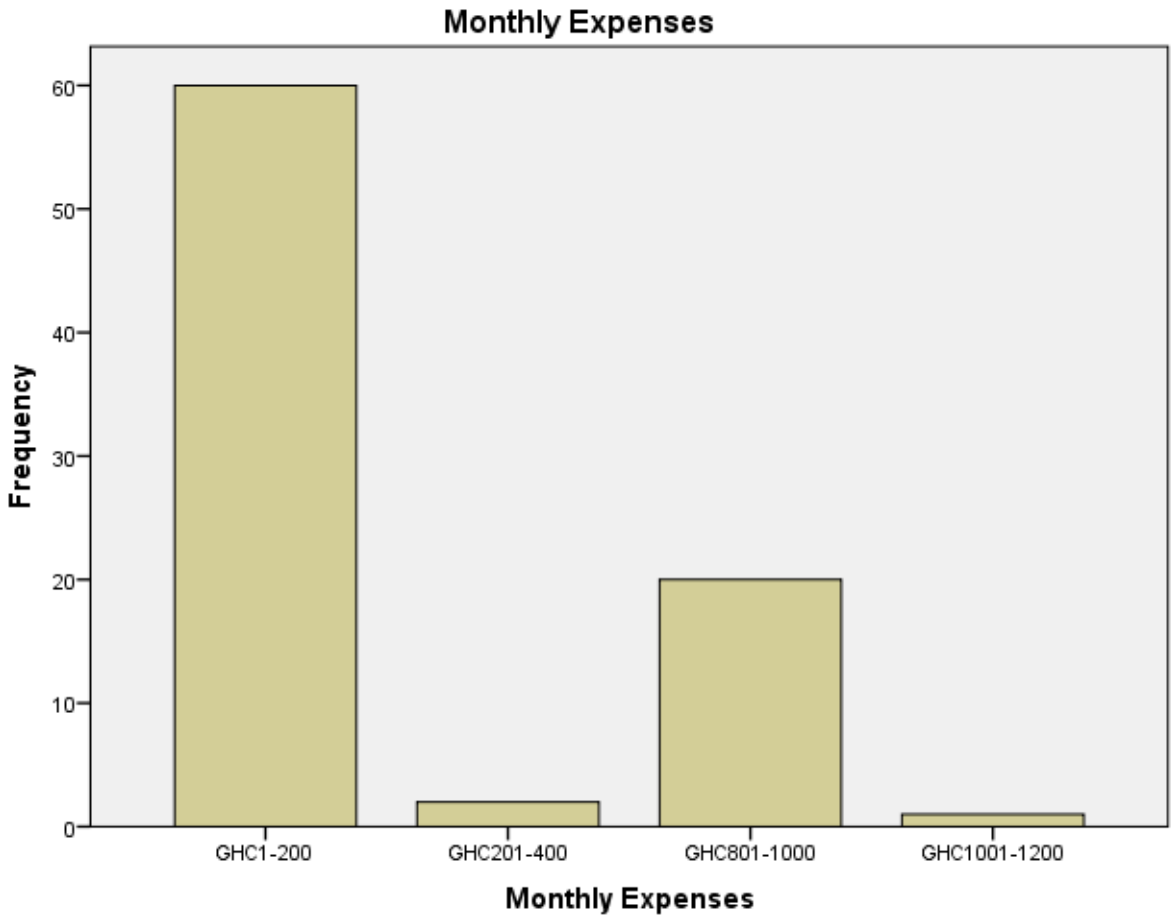


Figure 4.6: Monthly expenditure

The responses from the female farmers reveals that about 43.4% have been in the farming activities and business between 16-20 years whiles about 25.3% of the female farmers have been in the farming between 1-5 years as shown in the chart below:

Figure 4.7: Duration in business

The age dynamics indicates that about 43.4% of the female farmers are between 30-39 years whiles 33.7% are between the ages of 40-49 years. The age distribution of the female farmers of the Talensi District is shown as below:

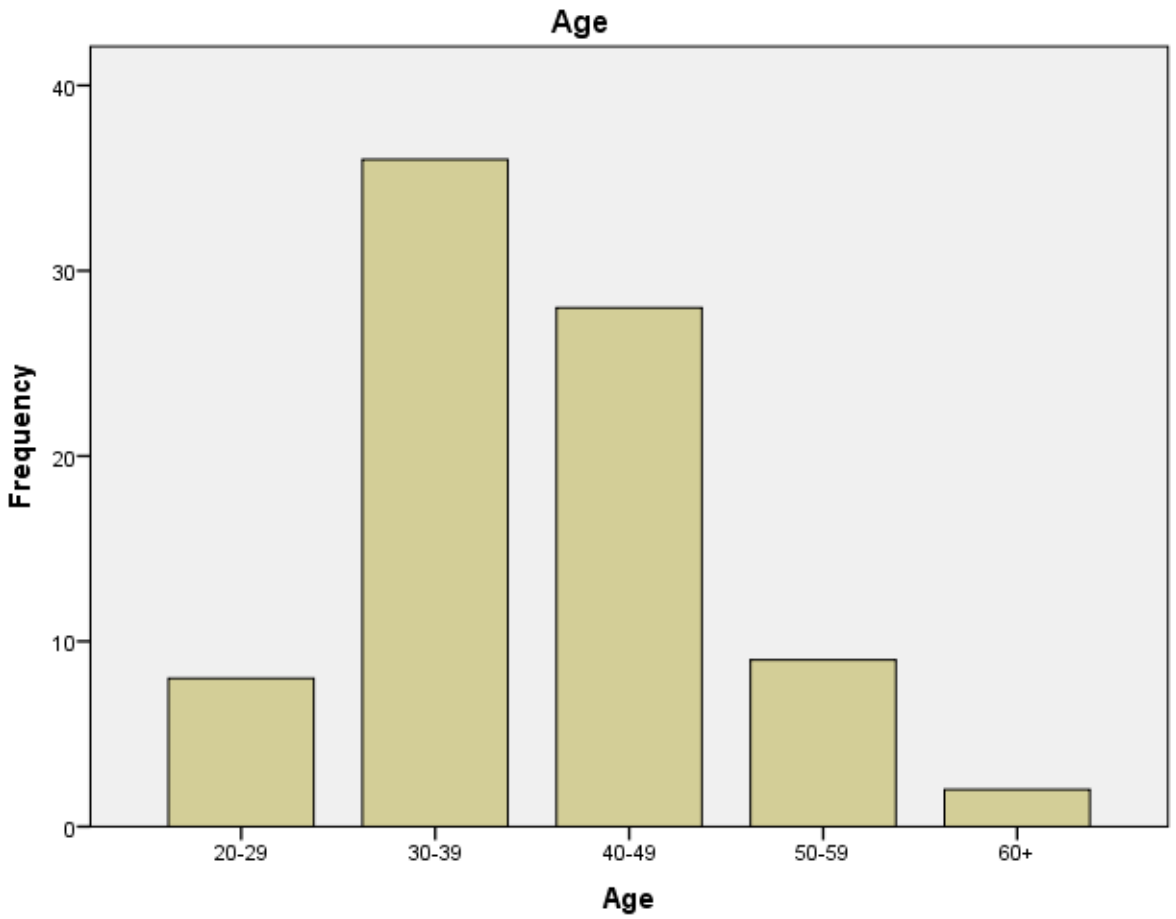


Figure 4.8: Age

Generally, the female farmers of the Talensi District are married with household sizes between 6-10 occupants. They are largely traders and farmers and have monthly income ranging from 1-1000ghc whiles their monthly expenses ranging from 1-200ghc.

FACTORS INFLUENCING THE ACCESS OF FEMALE FARMERS TO EXTENSION SERVICES

In our quest to unearth the factors influencing the access of female farmers to extension services in the Talensi District, we asked respondents if they were aware of the existence of these Agricultural extension officers. As presented in figure 9 below, about 68.7% indicated that they are aware of the extension services provided by the extension officers in the Talensi District whiles about 31.3% of the female farmers were not aware.

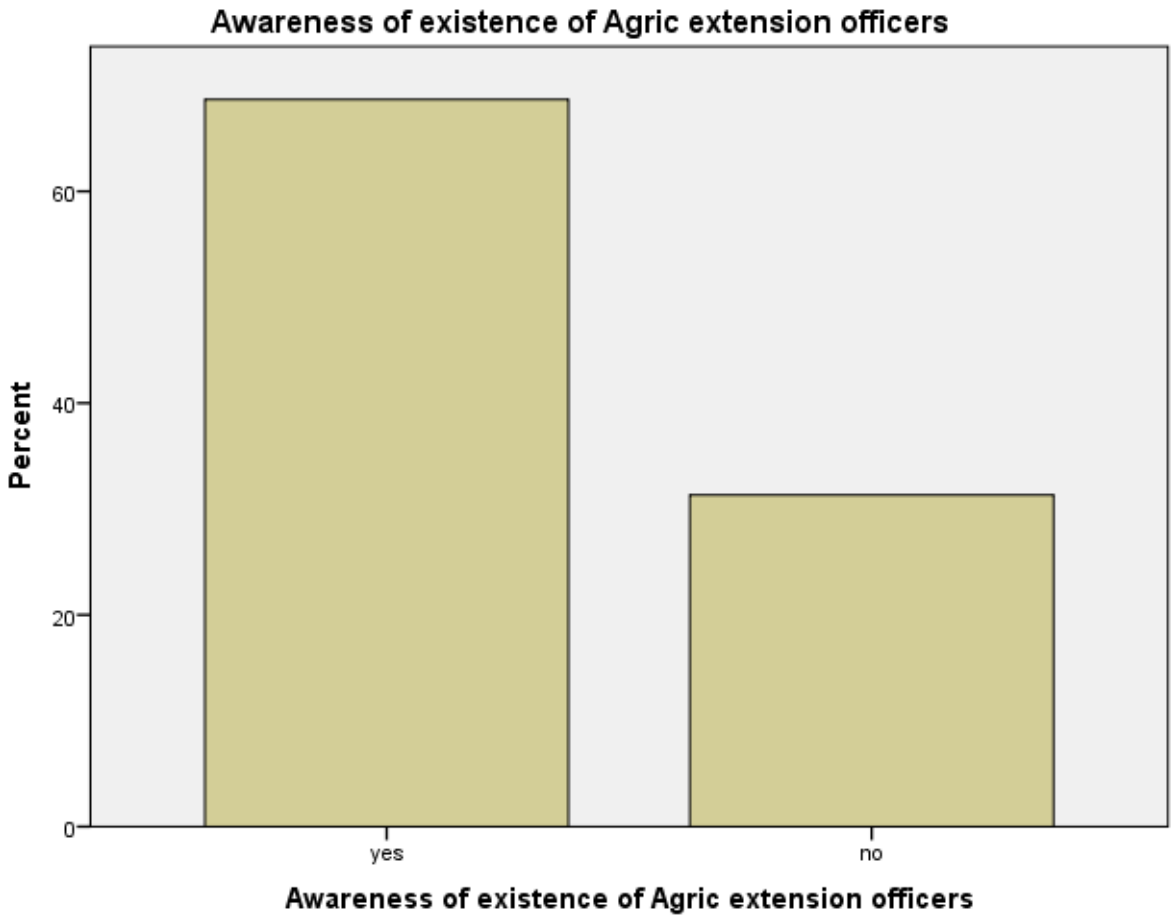


Figure 4.9: Awareness of Agric Extension officers

The research also investigated to understand if the level of education of the respondents has a relationship or connection to their awareness of the existence of the Agricultural extension officers. Despite 68.7% being aware of the extension officers, about 90.4% of the respondents had no formal education whiles about 8.4% of the respondents responded they have had some basic education and only 1.2% had secondary education. The outcome of their responses suggests that the level of education of the female farmers in the Talensi District has no connection to their awareness of Agricultural Extension Officers and hence has no bearing on how women farmers in Talensi District access extension services.

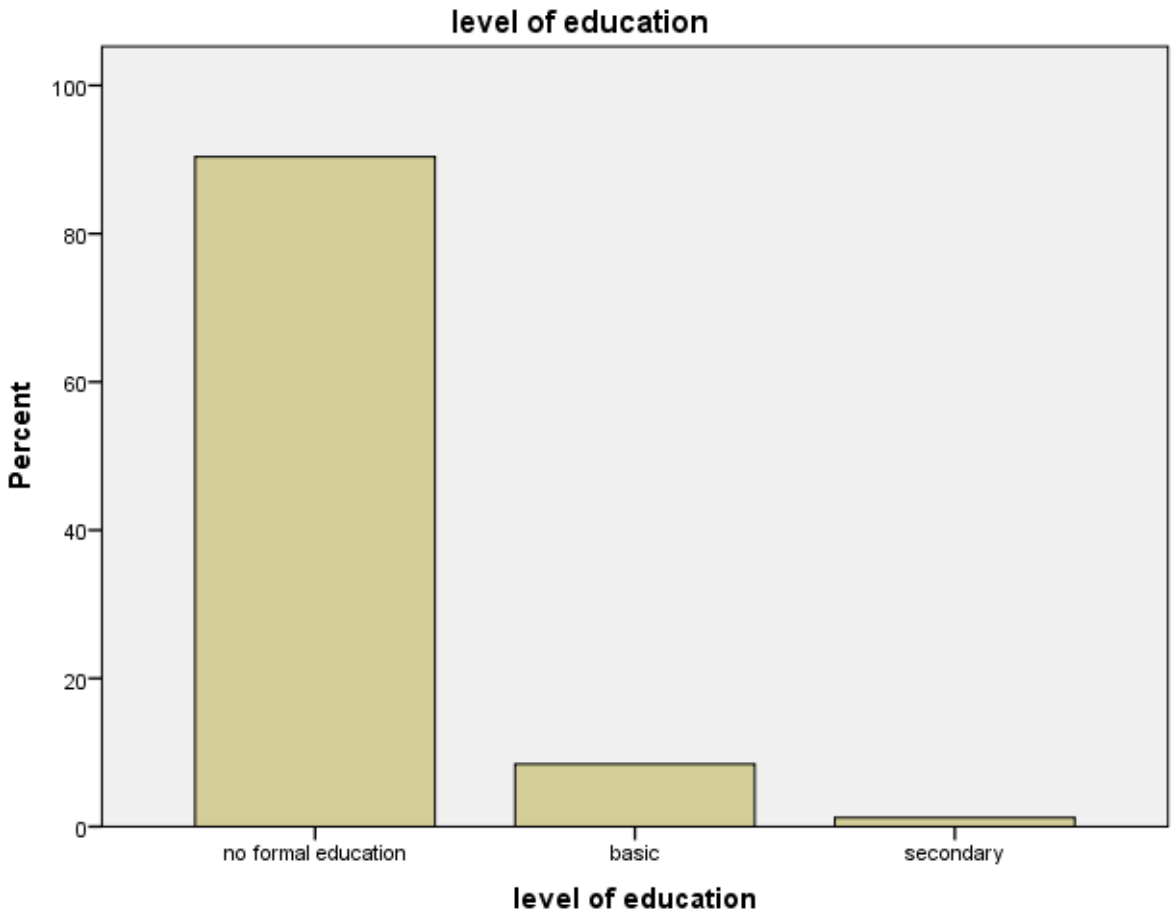


Figure 4.10: Level of education of respondents.

The capacities of extension agents to meet the extension service needs of the female small holder farmers is one of the factors that has the potential of determining how the female farmers access the services of the Agricultural extension agents in the Talensi District. The research asked the female farmers to rate per their level of agreement and disagreement on the capacities of the extension agents. It reveals that about 51.8% of the respondents believes there is limited capacity of Agricultural extension agents in the Talensi District whiles only 1.2% believes the capacity of the extension agents is not limited. The outcome of the responses suggests that limited capacities of extension officers could influence access of female farmers to Agric extension services in the Talensi District.

There is limited capacity of ext. agents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	43	50.0	51.8	51.8
	Agree	16	18.6	19.3	71.1
	Not applicable	23	26.7	27.7	98.8
	Strongly Disagree	1	1.2	1.2	100.0
	Total	83	96.5	100.0	
Missing	System	3	3.5		
Total		86	100.0		

Table 4.1 Limited capacity of extension agents

Traditional believes and cultural set ups have contributed in affecting the level of engagements some women may have with other people especially married women interacting with other males or strangers. The research investigated to understand of the cultural set ups in the Talensi District hinder female farmers from agricultural extension services.

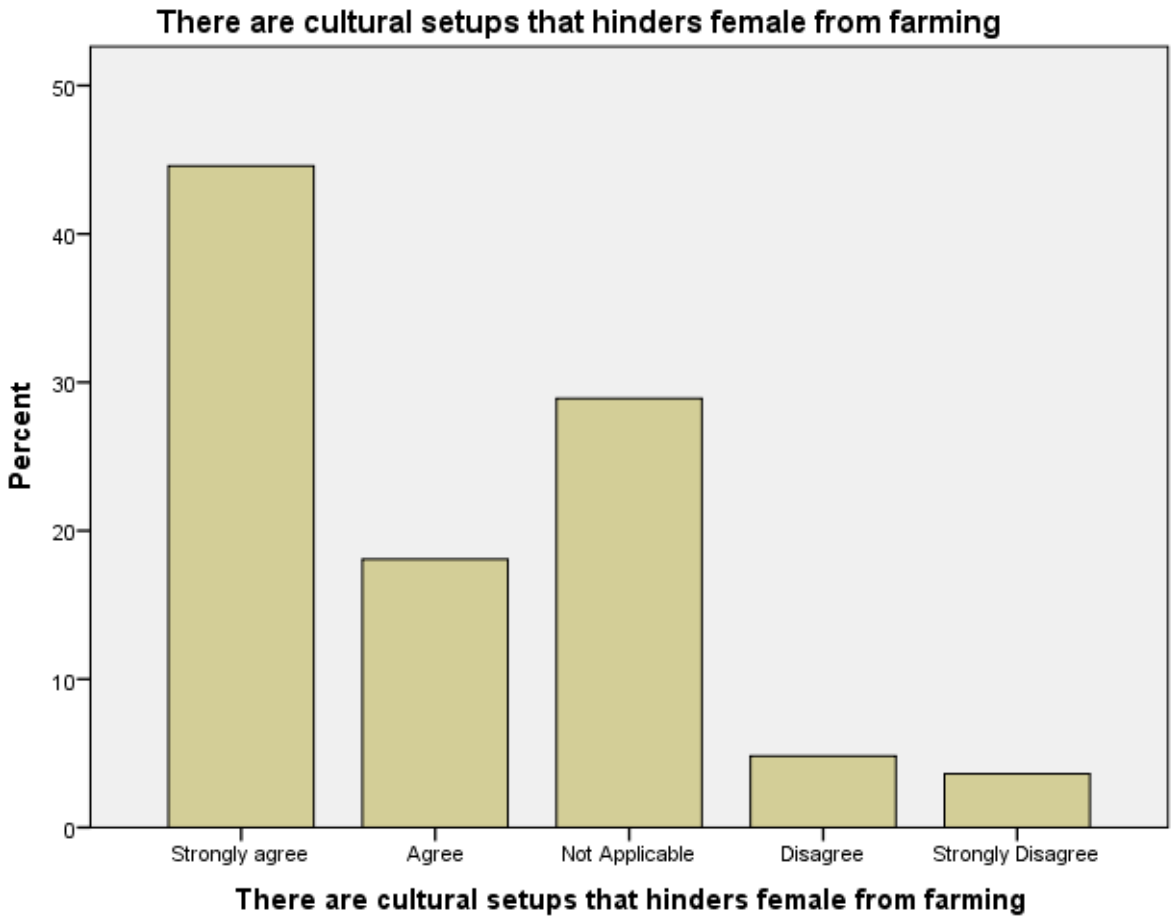


Figure 4.12: Cultural hindrances of female farmers to extension service

According to the responses presented above, cultural set ups in the Talensi District contributes to hinder female farmers from accessing agricultural extension services since about 62.7% agrees that there are cultural set ups that hinder female farmers from accessing extension services from agents whiles about 8.4% disagrees the cultural set ups has influence in accessing agricultural extension services.

New farming technologies are being introduce to enhance the efforts of farmers in order to have a better yield. Are these technologies female-friendly? Our research investigated this to understand if the technologies introduced to the female farmers in the Talensi District are female-friendly. Below are the responses:

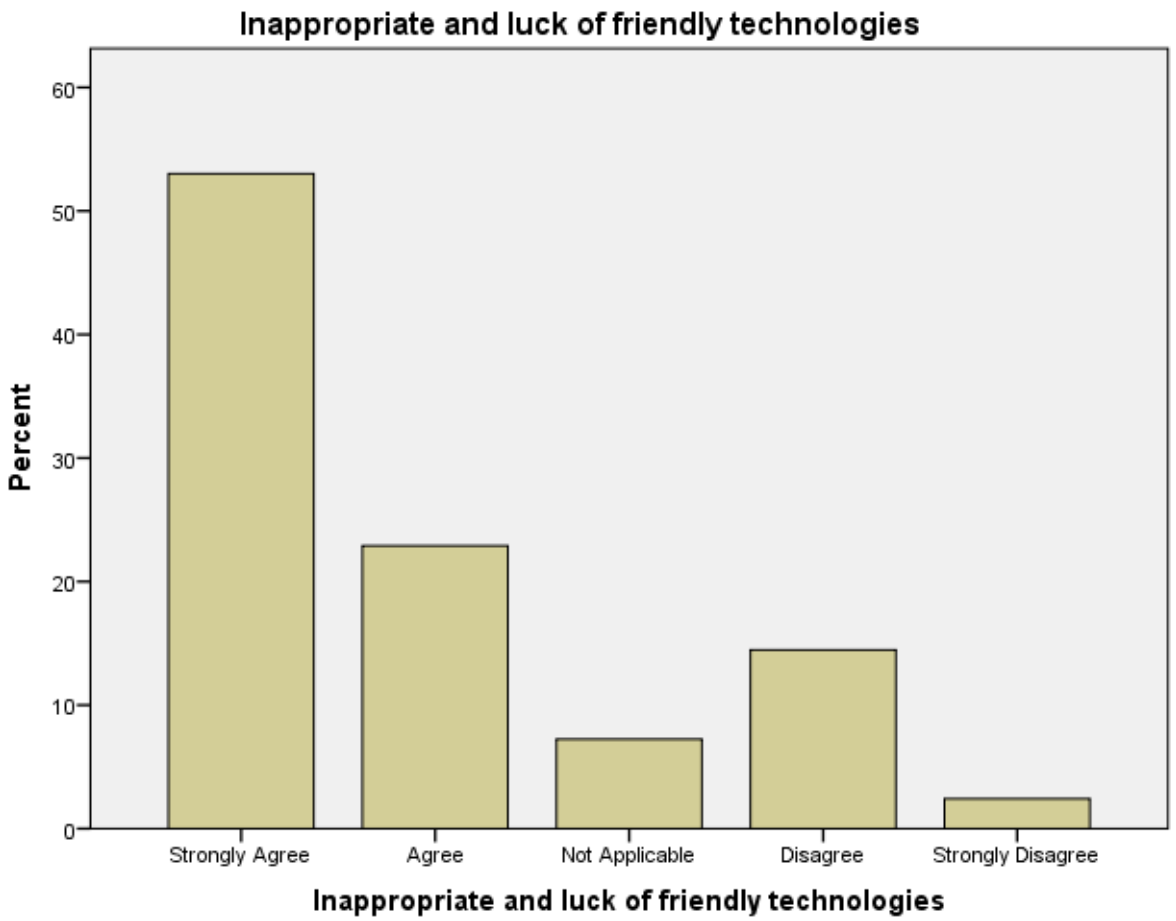


Figure 4.13: Inappropriate & lack of friendly technologies

As shown in the figure 13, about 75.9% of the female farmers in the Talensi District believes the technologies introduced to them are not female-friendly technologies whiles 16.9% believes otherwise. The outcome of the research suggests that the lack of female-friendly technologies could have contributed in influencing female farmers' access to agricultural extension services in the district.

The language used to communicate with farmers is also important. Officially, English is the language for Ghanaians but almost all the respondents per the survey are not educated hence the need for the extension agents to communicate in the local dialect. The research questionnaire asked respondents to indicate their level of agreement or disagreement if they are handicapped with language that could have influence their access to extension services. About 50.6% of the respondents believed language was a barrier to accessing agricultural extension services whiles about 38.5% believes language is not a barrier as indicated in the chart below:

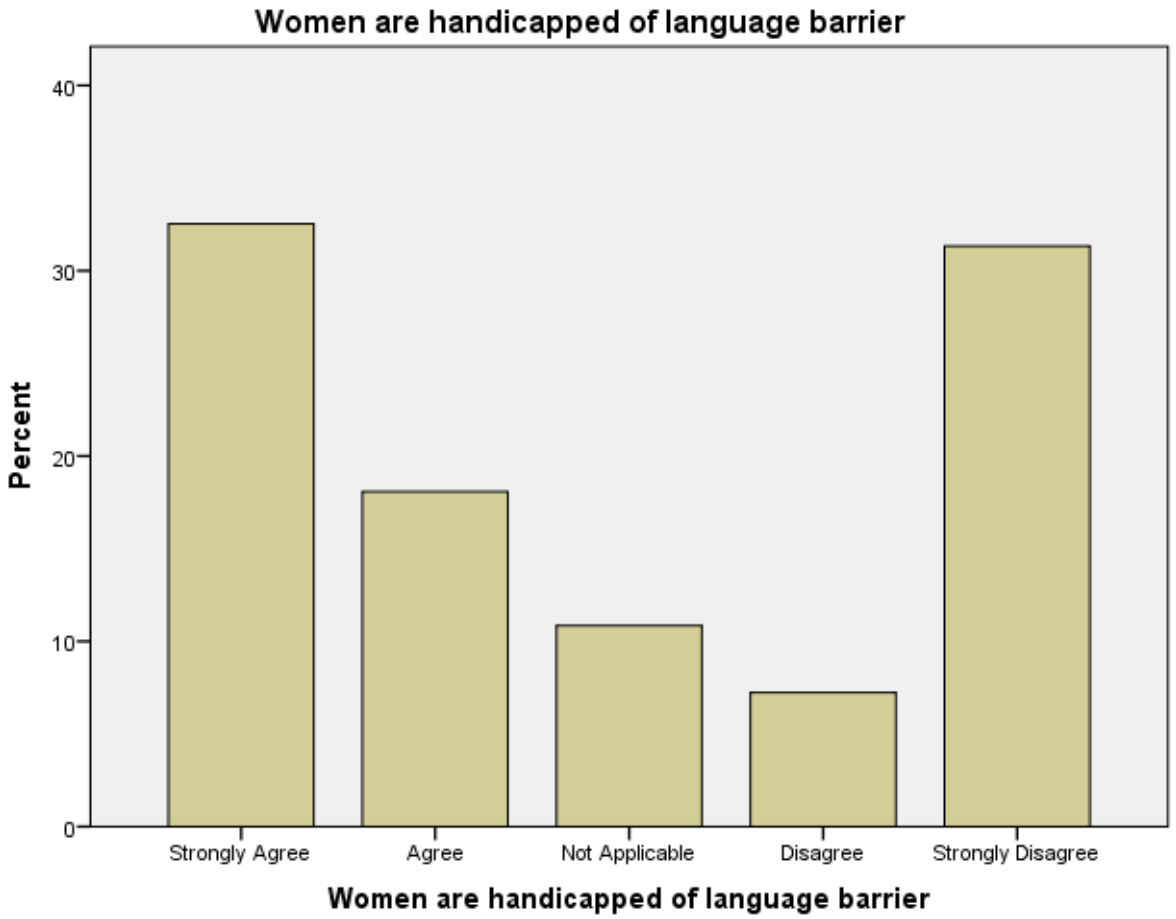


Figure 4.14: Language barrier

Illiteracy has contributed to low yield by farmers across the globe and the female farmers of the Talensi district are not exception. The illiteracy rate could be a factor to hindering the female farmers from accessing agric extension services. Despite the believe that illiteracy could contribute to female farmers' inability to access extension services, the female farmers of the Talensi district do not think illiteracy has hindered them from accessing extension services. About 56.6% of the respondents disagrees that high illiteracy rate is a factor that blocks women's participation in the agricultural extension services in the district.

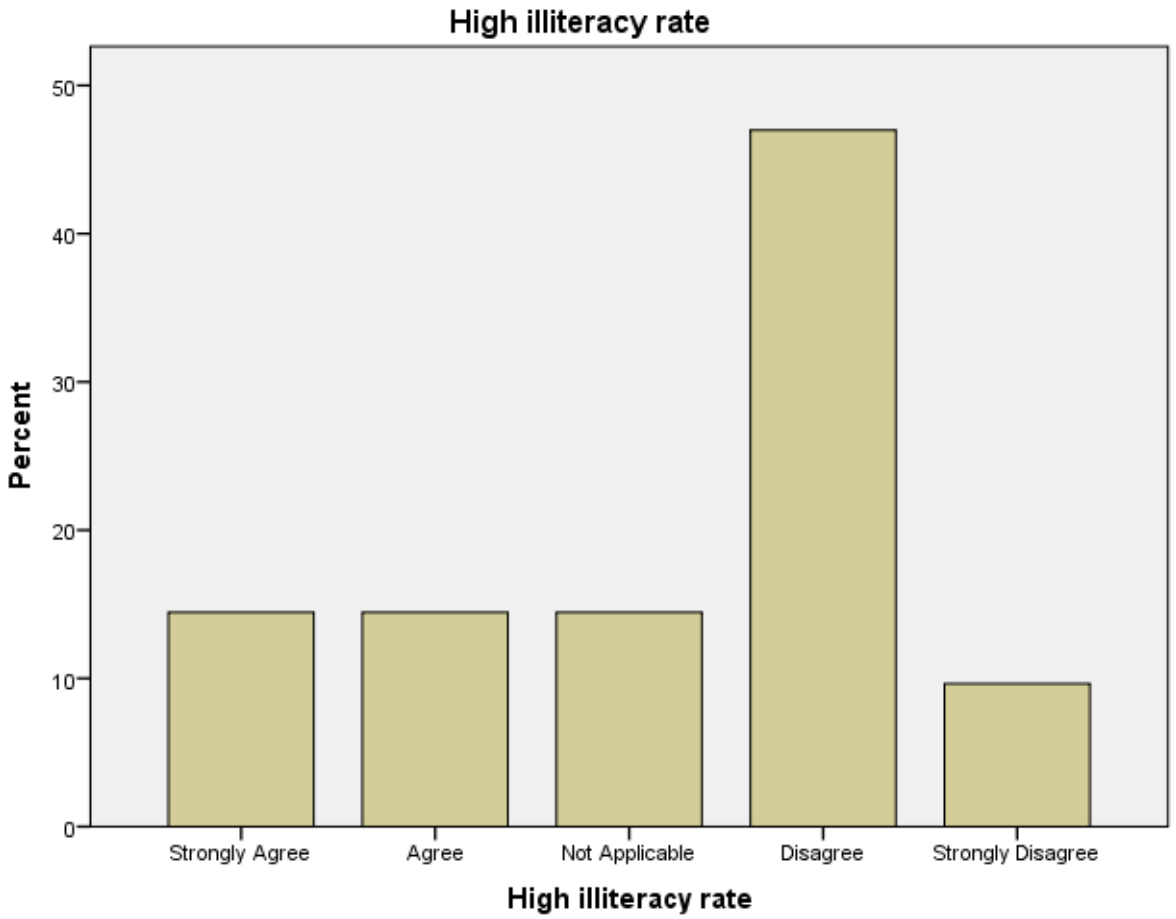


Figure 4.15: High illiteracy rate

Women participation in decision making is key towards creating an enabling environment that take the concerns of women into consideration. However, it is often believed women have limited participation in management, leadership and committee activities. The research asked respondents if the limited participation in management committees is a factor that influence them from accessing extension services.

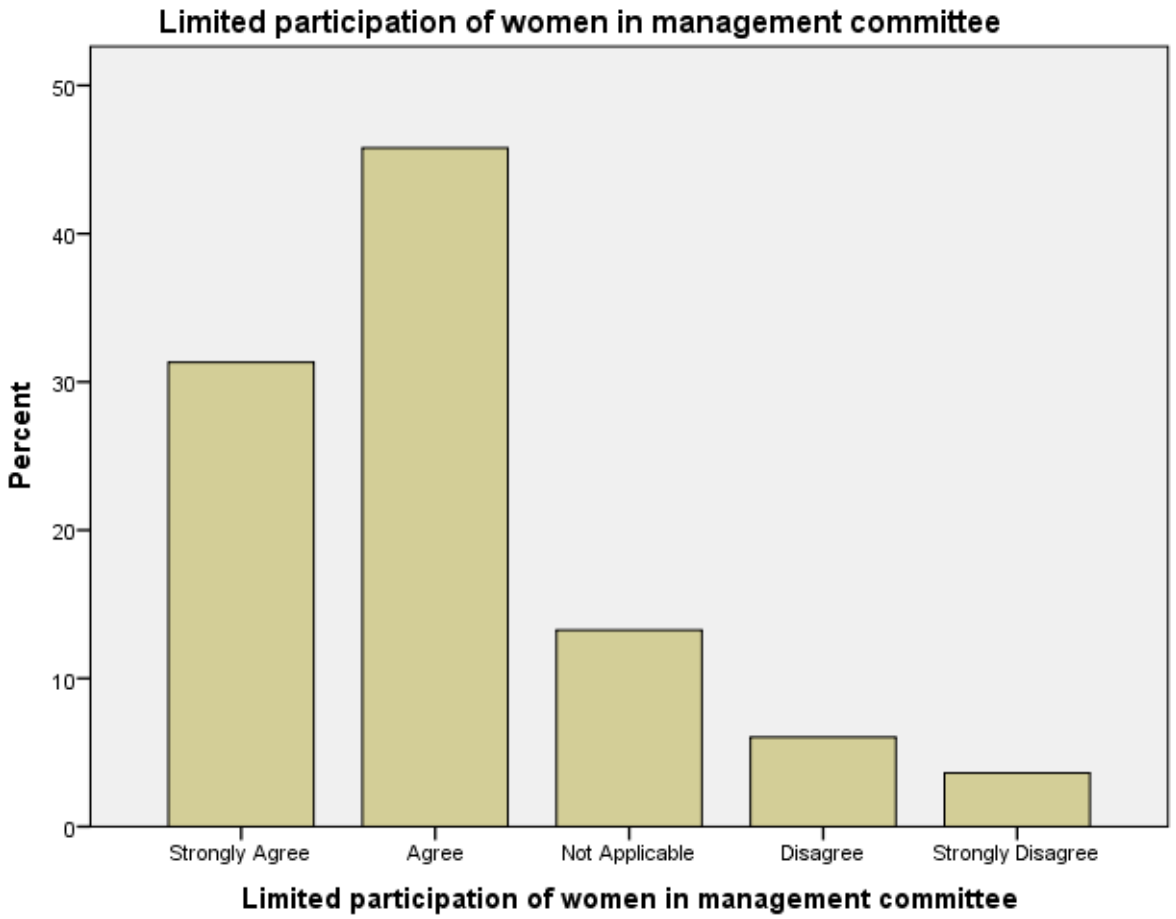


Figure 4.16: Limited participation of women in management committee

From the above chart, about 77.1% of the female farmers in the Talensi district believes limited participation of women in the management committee could be a factors influencing access to agricultural extension services in the district.

FEMALE FARMERS PERCEPTION ABOUT EXTENSION SERVICES

The research further investigated to understand the perception of female farmers who are aware of the extension services provided by the Agricultural Extension officers in the Talensi District. As stated above, about 68.7% of the female farmers are aware of the extension services. Out of these female farmers about 60.2% claims they have benefitted from the services provided by the Agricultural Extension officers whiles 39.8% who are aware of the services of the

extension officers said they have not benefitted from the services they received from the extension officers.

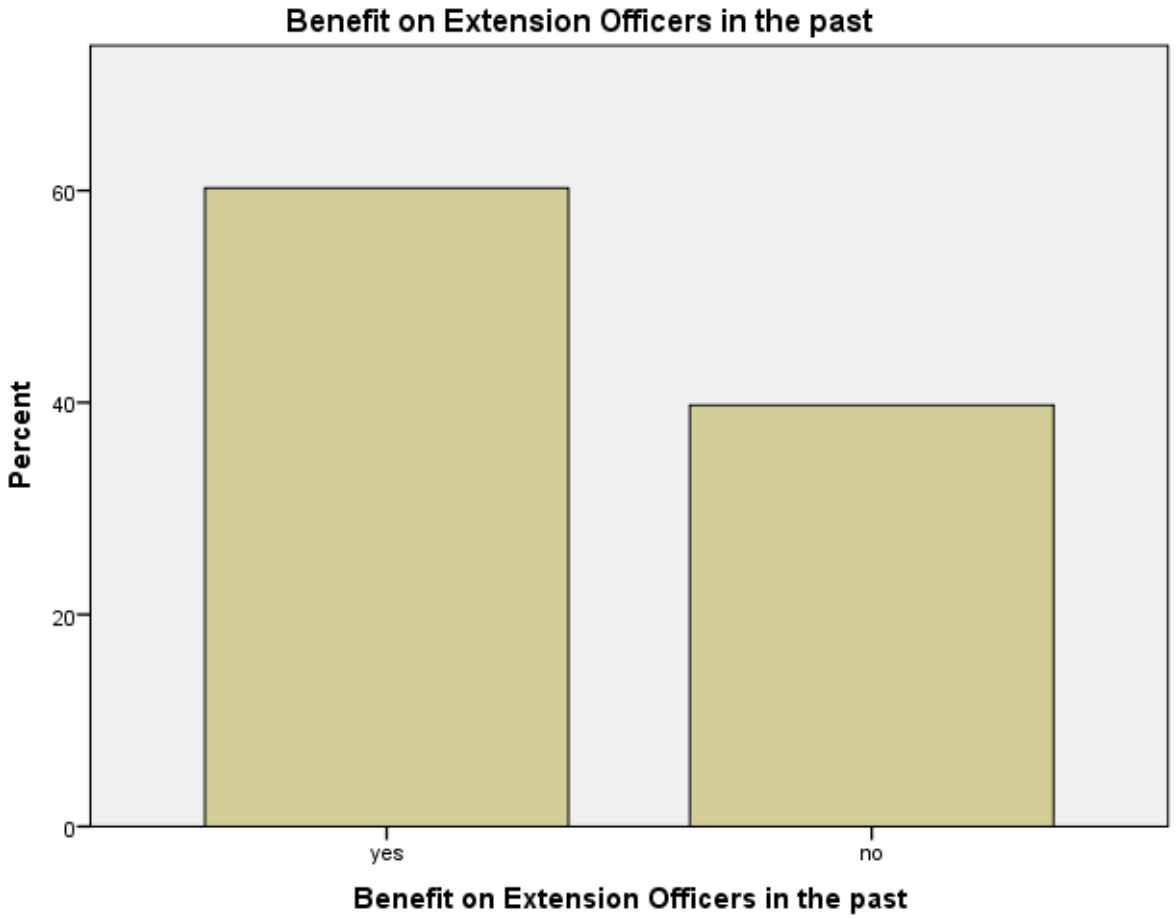


Figure 4.17: Benefit of past agriculture extension programme

Even though majority (60.2%) of the female farmers in the Talensi District believes they have benefited from the extension officers, quite a good number (39.8) reveal the services by the agricultural extension agents not contributing to their progress.

Figure 4.18: Type of pass agriculture extension service

About 41.9% of the female farmers did not receive extension services whiles the remaining 58.1% received agricultural extension services as presented in the table below:

Among the female farmers who benefitted from the extension services, 50% of them claimed they received Agricultural advice from the extension officers whiles 38% received general farming knowledge from the extension officers as stated in the table above.

When asked how often they gets these services they receive from the extension officers, about 53% of the respondents said they always receive such services whiles about 33.7% said they rarely receive those services as shown in the chart below:

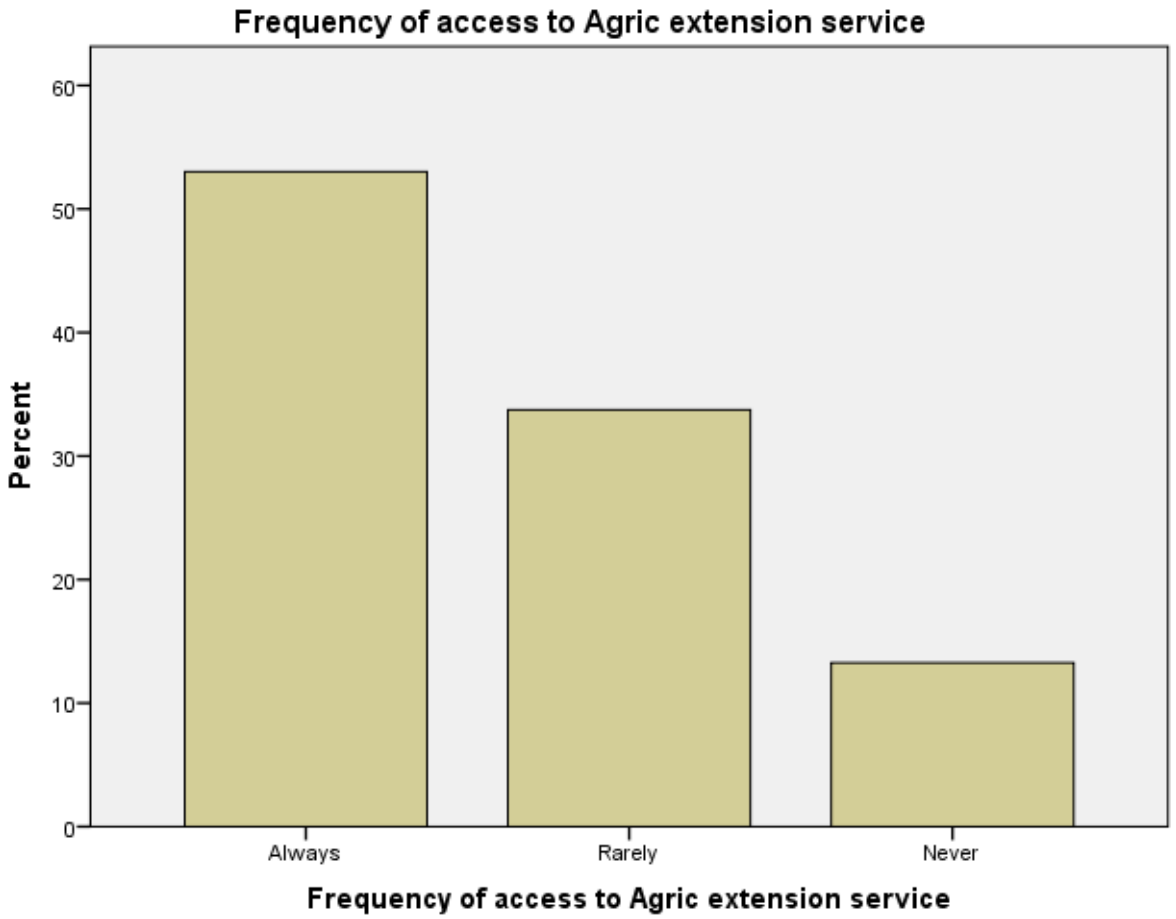


Figure 4.19: Frequency of access to extension service in the past

Visiting the farms by Agricultural extension officers is essential in identifying and correcting any farming practice that might not help in yielding good results. The respondents were asked how many times extension agents visit their farms in the last cropping season.

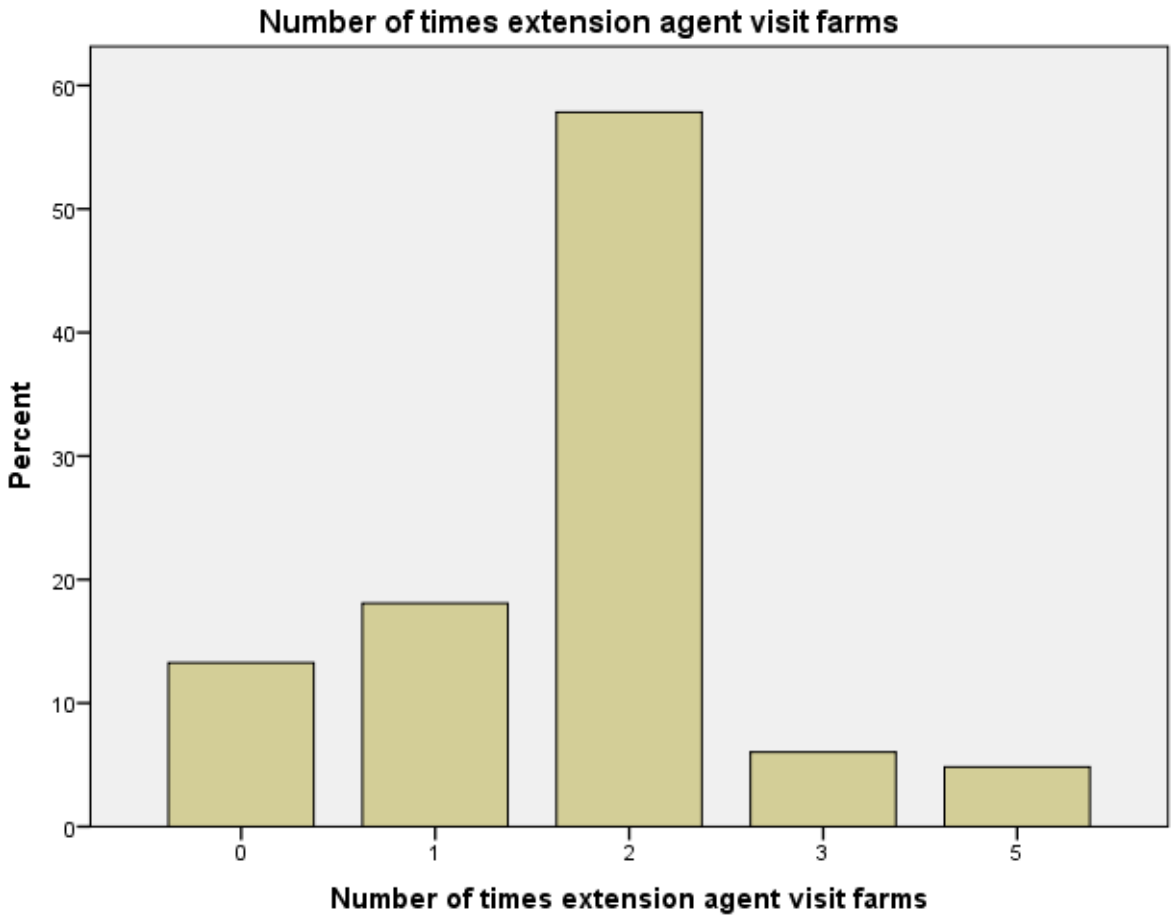


Figure 4.20: Number of times extension agents visit farm

As presented above, about 57.8% of the respondents said the extension agents have visited their farms twice in the last cropping season whiles about 13.3% of the female farmers in the Talensi District said none of the Agricultural extension officers have visited them in the last cropping season.

RELATIONSHIP BETWEEN ACCESS TO EXTENSION SERVICES AND LEVEL OF PRODUCTIVITY.

One of the objectives for this research work is to understand the relation between access to extension services and level of productivity of the female farmers in the Talensi District.

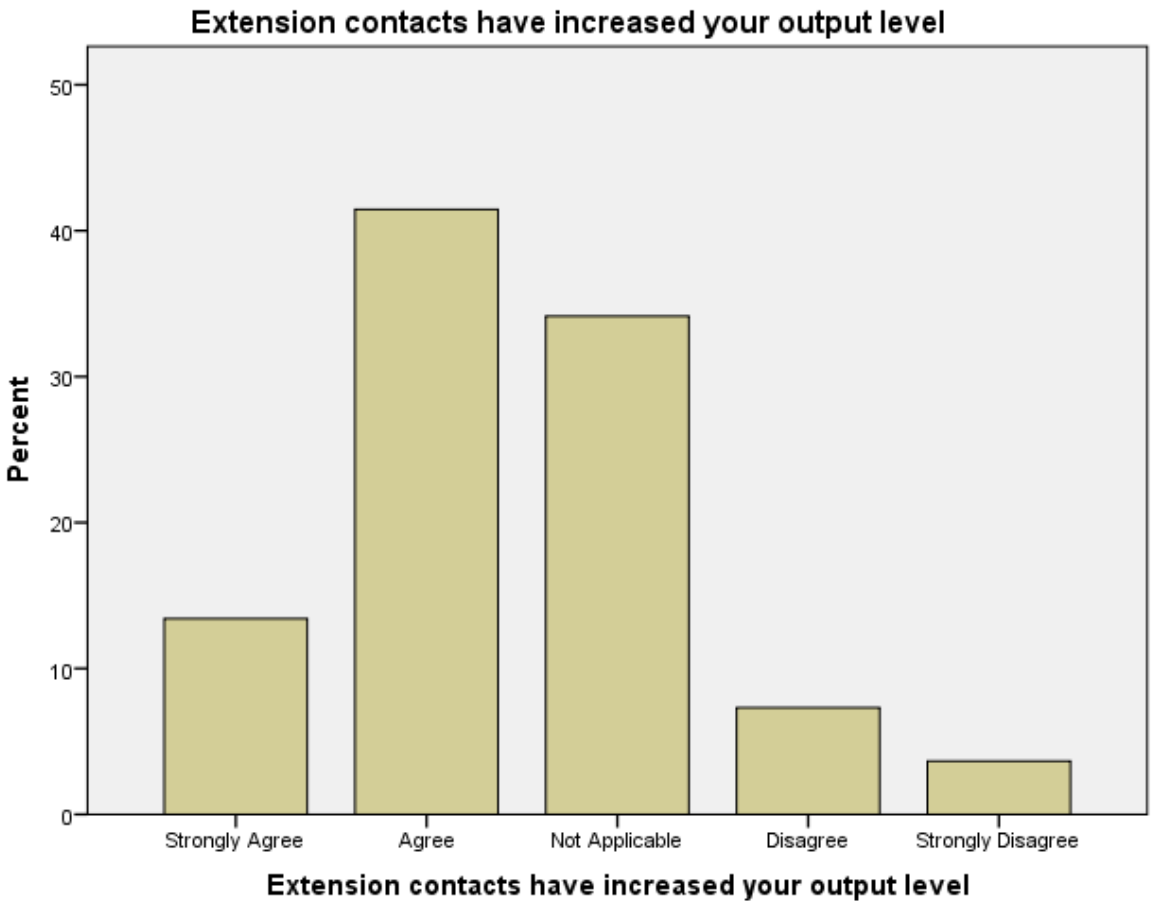


Figure 4.22: Increment in output level

According to the graph above, about 13.4% and 41.5% respondents strongly agree and agree respectively that the extension contacts established have contributed in increasing their output levels whiles 7.3% and 3.7% respectively disagree strongly and disagree with their output levels tired to the contacts they had with extension officers. About 34.1% could not agree or disagree if their contacts with the Agricultural extension officers contributed in increasing their output levels. The responses from the female farmers in Talensi District confirms that about 54.9% agrees that their contacts with extension officers have helped in increasing their output levels.

The research also took interest in investigating if the contacts with the extension officers contributes in improving the income levels of the female farmers in the Talensi District.

Extension contacts have increased your output level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	11	12.8	13.4	13.4
	Agree	34	39.5	41.5	54.9
	Not Applicable	28	32.6	34.1	89.0
	Disagree	6	7.0	7.3	96.3
	Strongly Disagree	3	3.5	3.7	100.0
	Total	82	95.3	100.0	
Missing	System	4	4.7		
Total		86	100.0		

Table: 4.2 Increment in output level

As indicated in the above chart, a total of 57.3% agrees (strongly agree and agree) that their contacts with the Agricultural extension officers contributed in increasing their income level whiles about 11% disagrees (strongly disagree and disagree). Quite a good number of the respondents did not agree or disagree if their contacts with the Agricultural extension officers had impact on their income levels.

The responses from the female farmers suggest a relationship between their contact with the extension officers and their income level.

Despite the female farmers agreeing that their output and income levels increased through their contacts with the Agricultural extension officers, only 7.3% agrees (strongly agree and agree) that their contacts have given them access to financial credit as shown in the chart below.

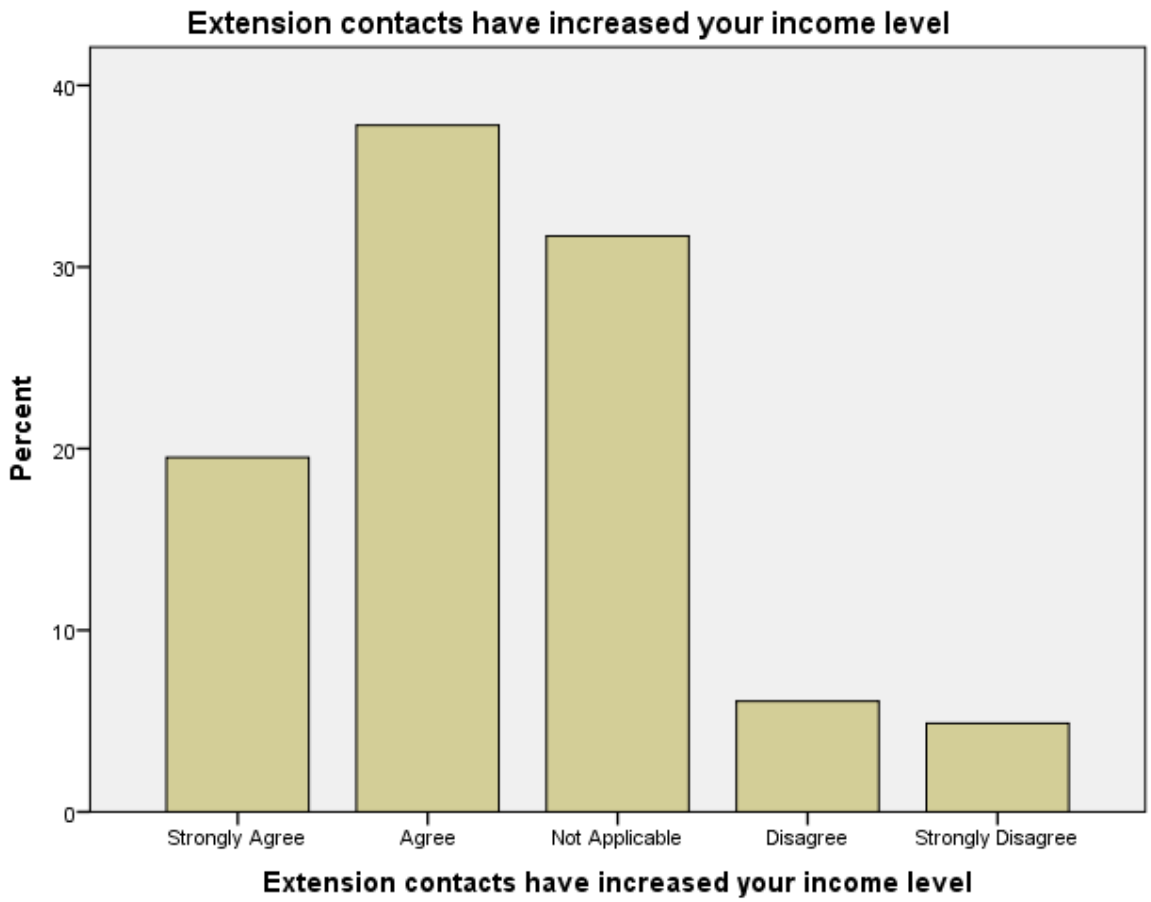


Figure 4.23: Increment in income level

As indicated in the above chart, a total of 57.3% agrees (strongly agree and agree) that their contacts with the Agricultural extension officers contributed in increasing their income level whiles about 11% disagrees (strongly disagree and disagree). Quite a good number of the respondents did not agree or disagree if their contacts with the Agricultural extension officers had impact on their income levels.

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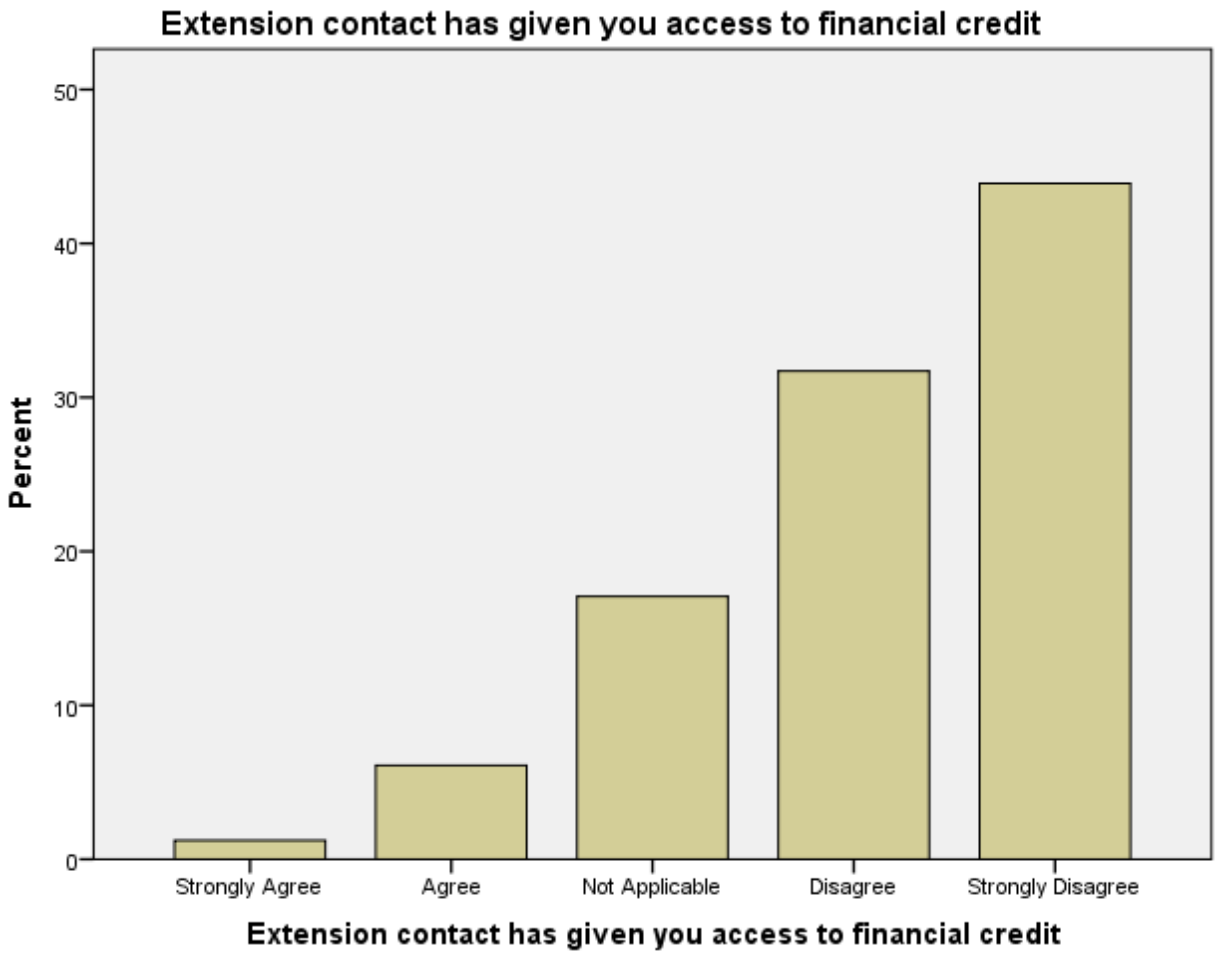

Figure 4.24: Access to financial credit

From the responses from the female farmers in the Talensi District, access to financial credit appears to be a major challenge since about 75.6% of the female farmers respondents disagree (strongly disagree and disagree) that the contacts with the Agricultural extension officers has given them access to financial credit. The outcome from their responses suggests there is no relationship between the extension services received and how they can get access to financial credits to enhance their farming activities.

Is there a relationship between the contacts with extension officers and quality of farm outputs? The research investigated and the responses of the female farmers regarding quality of outputs are presented in the chart below.

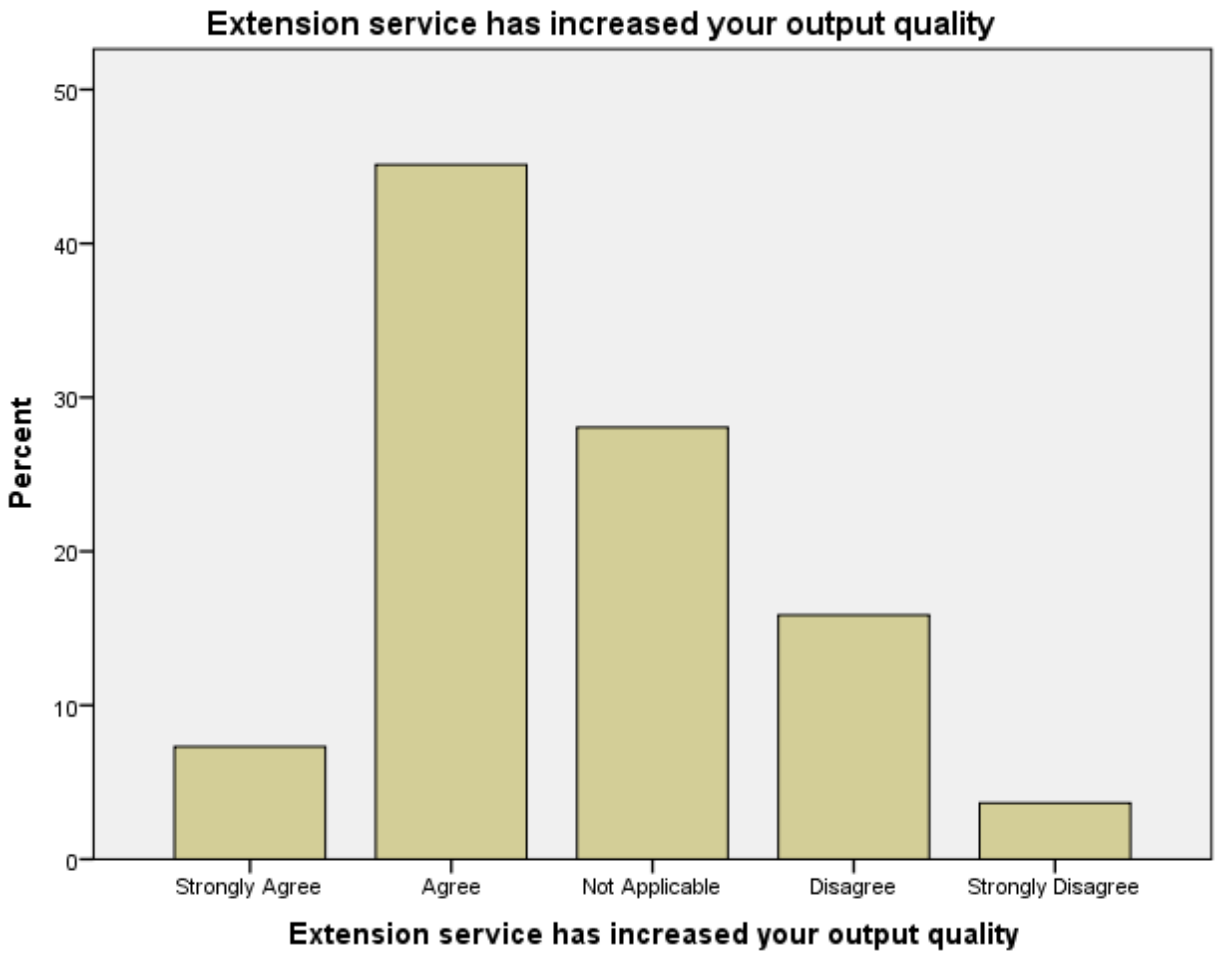

Figure 4.25: Increment in output level

From the chart above, the female farmers in the Talensi District believes their engagement with the Agricultural extension officers has helped them to increase their farm output quality as about 52.4% agrees (strongly inclusive) that extension service has increased their output quality whereas about 19.6% disagrees (strongly inclusive). The female farmers believe there is a healthy relationship between the extension services they receive and output quality.

Access to market is one of the biggest challenges facing female farmers in the country. Our research investigated to understand if there is a relationship between extension service and access to market for the female farmers in the Talensi District. The responses of the female farmers are presented below.

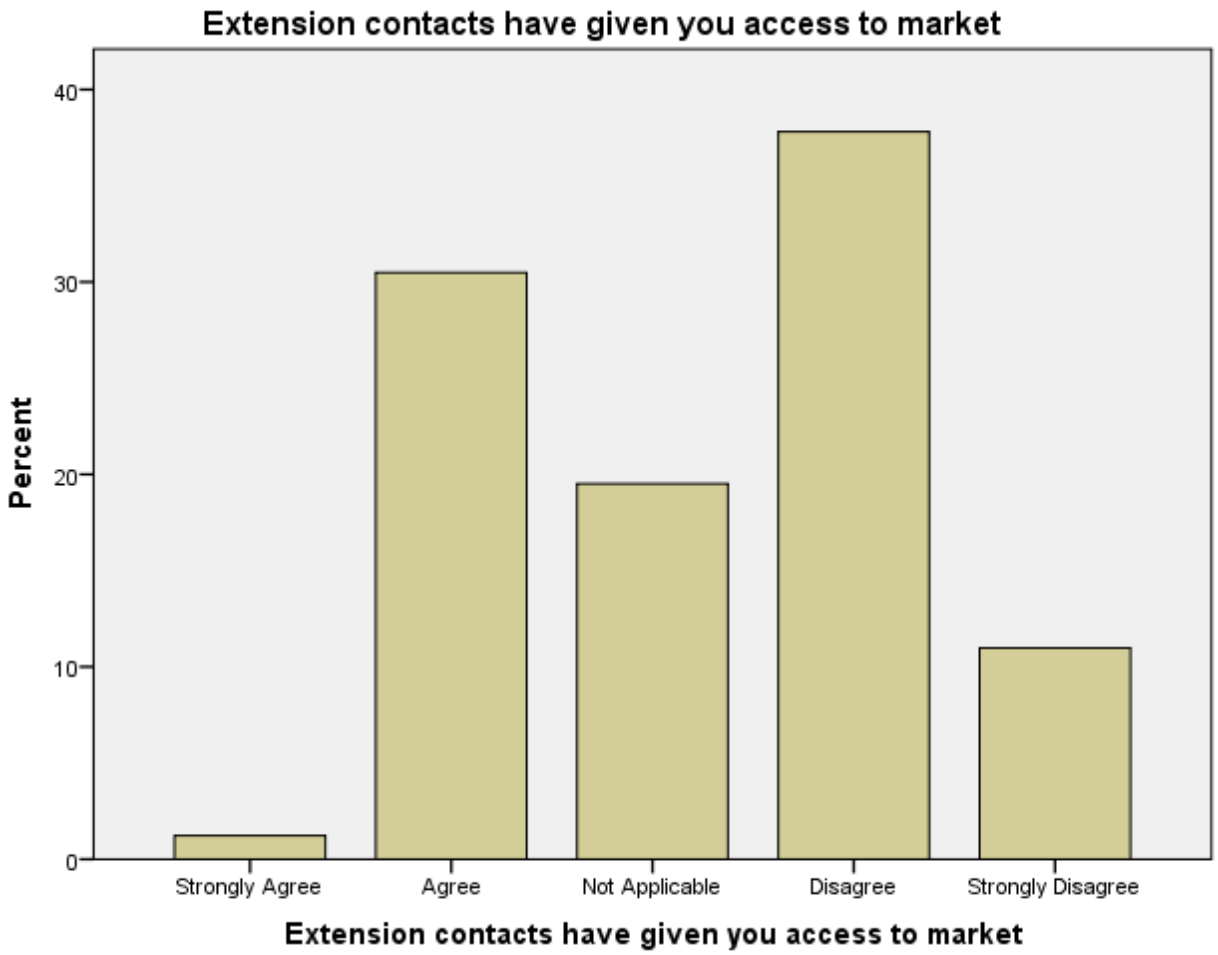

Figure 4.26: Access to market opportunities

From the chart above, about 48.8% of the female farmers disagree (strongly disagree inclusive) that the extension services they receive have given them access to market whiles about 31.7% believes the extension services they receive contributed in giving them access to market.

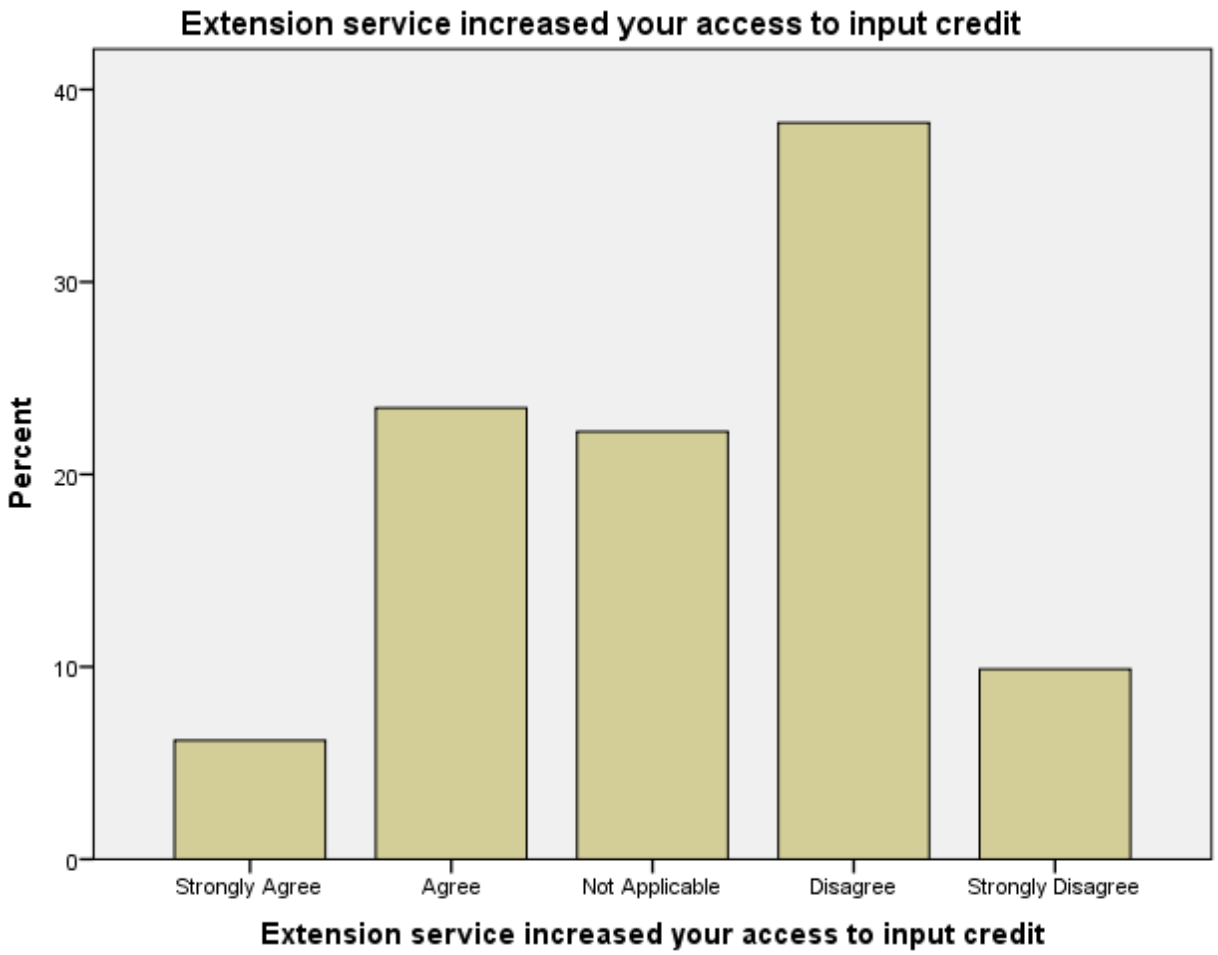

Figure 4.27: Access to input credit

The female farmers in the Talensi District were also asked if the extension services they receive from the Agricultural extension officers has a positive impact on the input credits. About 29.6% agrees the extension services received increased their access to input credits whiles about 48.2% of the female farmers' respondents disagrees whereas about 22.2% responded not applicable. From the responses stated in the above chart, the extension services have not yielded much results in terms of increasing access to input credits for the female farmers in the Talensi District.

With about 53% of female farmers getting extension services always, the research further investigated to understand if these services will translate into increasing productivity for these female farmers.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

In this chapter, the research outlines the findings based on the objectives of the study as well as presents the conclusions and recommendation per the outcomes of the research. The conclusions and recommendations as solely based on the research findings conducted in the Talensi District of the Upper East Region of Ghana on female farmers.

The previous Chapter four presents the data analysis and discussions concerning the topic: "Effects of Access of Female Farmers to Agricultural Extension Services On Agricultural Productivity in The Talensi District of the Upper East Region of Ghana".

5.1 FACTORS INFLUENCING THE ACCESS OF FEMALE FARMERS TO EXTENSION SERVICES

The research reveals that the female farmers in the Talensi District of the Upper East Region of Ghana are aware of the existence of the Agricultural extension officers in their districts. It is also worth noting that majority of the female farmers had non-formal education and their level of education did not influence their awareness of the existence of the female farmers in the district. So far as the female farmers in the Talensi district is concern, the level of education of the female farmers in the District has no connection to their awareness of the existence of Agricultural Extension Officers and hence has no bearing on how women farmers in Talensi District access extension services.

One of the factors influencing the access of female farmers to agricultural extension services is limited capacities of extension officers in the Talensi District of the Upper East Region of Ghana. Traditional believes and cultural set ups are also identified as one of the factors that hinders female farmers access to agricultural extension officers in the district. The research

further reveals that inappropriate and lack of female friendly technologies also influences female farmer's engagements in the district. Women participation in management committees and leadership was also investigated and the female farmers in the Talensi district agrees that the limited participation of women in the management committees has also influence the level of access of the female farmers to the agricultural extension services since they believe women in the committee could have been able to let stakeholders understand the challenges of women in accessing the services of the extension officers in the district.

It is interesting to report that the limited capacities of extension officers, cultural set ups, lack of female-friendly technologies and limited participation of women in management committees are the factors influencing female farmers access to agricultural extension services in the Talensi District of the Upper East Region of Ghana.

5.2 FEMALE FARMERS PERCEPTION ABOUT EXTENSION SERVICES

The perception of the female farmers about the extension services in the district is key in order to understand the relationship between the female farmers and the extension officers as well as understand the factors that contributes to their successes or failures in the Talensi District of the Upper East Region of Ghana.

It is worth noting that, despite the high rate of no formal education, the female farmers in the district are so much aware of the existence of agricultural extension officers providing extension services.

The research reveals that the female farmers in the Talensi District of the Upper East region of Ghana actually benefits from the extension services they receive from the Agricultural extension agents. It is reporting that among the extension services they received, majority of the female farmers received general Agricultural advice from the extension agents. Other agricultural extension services received are education, fertilizer, farming knowledge and maize

seeds. Fertilizer was perceived to be the least among the extension services they received from the agricultural extension officers.

The female farmers in the district also reveals that they always receive the extension services from the agricultural extension agents in the district when they were asked how often they get those services.

Farm visits by agricultural extension agents is also important. It is worth reporting that per the outcome of the research, the agricultural extension agents in the Talensi District of Upper East Region of Ghana visits the farms of the female farmers twice in a cropping season.

5.3 RELATIONSHIP BETWEEN ACCESS TO EXTENSION SERVICES AND LEVEL OF PRODUCTIVITY

Extension service is very instrumental in enhancing and increasing the agricultural productivity in the world and the Talensi District of the Upper East Region is not an exception. The availability of the agricultural extension agents contributes to increase satisfaction in the yields and create a healthy relationship between farmers and the agents. The extension services received by the female farmers in the district has a relationship with the level of satisfaction and productivity. In the Talensi District of Upper East Region of Ghana, the extension services to the female farmers is very encouraging since most of the female farmers are receiving extension services.

Per the outcome of the research, it is worth reporting that those female farmers who accessed the agricultural extension services had some benefits. This confirms that there is a healthy relationship between the extension services received and benefits that leads to increasing productivity.

Output levels of the female farmers are also reported to be increased through the engagement of the female farmers with the agricultural extension agents.

The female farmers also reveal that their income levels have been increased though the contacts they have with the agricultural extension officers in the Talensi District since they agreed that the extension agents contacts have increased their level of income.

The quality of the outputs is also very important and it is worth noting that the female farmers in the Talensi District believes the quality of their farm outputs have been increased through their engagements with the agricultural extension officers hence there is a relationship.

Despite the female farmers agreeing that their output and income levels increased through their contacts with the Agricultural extension officers, they did not agree that their contacts have given them access to financial credit which they said is one of their major challenges. Their inability to get financial credit suggests there is no relationship between the extension services received and how they can get access to financial credits to enhance their farming activities.

One of the major challenges for the female farmers in the Talensi District of the Upper East Region of Ghana is access to market for their farm produce. The research reveals that the engagement of the agricultural extension agents with the female farmers has not yielded results in terms of creating access to market for female farmers to market and sell their farm produce.

The extension services rendered to the female farmers per the outcome of the research reveals that the female farmers could not benefit from the services in the area of input credits. The female farmers in the district were unable to increase their access to input credits through the extension services they received.

The female farmers in the Talensi District of the Upper East Region of Ghana have benefitted from the extension services provided by the Agricultural extension agents by increasing their output levels, increasing their incomes as well as increasing their output qualities. This means there is a relationship between the extension services received and the level of productivity in

those sectors. However, the extension services could not help the female farmers in the district solve some of their major challenges of getting access to financial credits, gaining access to markets as well as access to input credits. The outcome of the research then suggests that the extension services rendered by the agricultural extension agents has no relationship with financial credit, market and input credit.

RECOMMENDATION

The research work established that the women farmers in the Talensi District of the Upper East of Ghana are very passionate about farming activities. The research also reveals that the female farmers are not engaging in farming activities in large and commercial quantities but only to support their households and not for economic gains. Considering this finding, the study recommends periodic stakeholders engagement with the women farmers in the district to educate them on the economic potentials in farming activities and how they can make economic gains out of it to support their households better. The women farmers should also be given some level of entrepreneurship training to help them change their mind-set of doing farming just for the consumption of their households. By changing their mind-set, it could encourage them to do more to enjoy the economic benefits in farming.

Secondly, Access to financial and input credits are some of the major challenges faced by the female farmers in the Talensi District. Despite their access to some extension services, the challenge of access to financial and input credits still lingers. It is therefore recommended that the Agricultural extension agents revise their services and engage the female farmers on how they can access financial credit to support their farming activities. The Agricultural extension officers should liaise with other agencies with the right capacity to help in solving this challenge.

Thirdly, The Government should increase the number of extension workers and add more women in the management committees in the Talensi District as well as institute a proper monitoring system to ensure extension services gets to the female farmers. This will create an environment for the women to learn on improving yield as well as discuss other issues regarding farming activities and technologies.

It is also recommended that all stakeholders in the Agricultural sector in the Country should collaborate their efforts to ensure a ready market for the produce of these female farmers since access to market is one of the key factors influencing growing beyond just for the household consumption to commercial status.

The study was conducted using just some selected female farmer groups in the Talensi District of Upper East Region of Ghana. It will therefore be difficult to generalise the findings to cover all female farmer groups in the Upper East Region of Ghana. It is therefore recommended that the study be replicated in other female farmer groups to determine whether there are variations in the findings.

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Appendix 1

INTERVIEW GUIDE FOR DISTRICT EXTENSION AGENTS AND DISTRICT DIRECTOR OF EXTENSION

I am a student of the University for Development Studies. As a partial fulfilment for the award of the MSc in Innovation Communication, I am undertaking a research into "Effects of access of female farmers to agricultural extension services on agricultural productivity in the Talensi District". Please be assured that any information you provide shall be used for academic purposes only and so be kept confidential.

Name of Interviewee: ……

Date: ……..... Interview Code…… Name of Community: ……

1. Find out the number of extension agents present in the District.
2. Find out about the average extension agent/farmer ratio
3. Find out what MoFA is doing to improve upon the ratio
4. Find out if they make special efforts to reach out to female farmers
5. Find out about the challenges they face in reaching out to female farmers
6. Find out how many of them are females.
7. If less, ask them for the reasons accounting for it.
8. Find the number times each agent visits a farmer in the district.
9. Ask if female farmers are beneficiaries to these visits and how many of them do they encounter in each visit.
10. Find out the type of extension service delivered and how effective it is to the farmers.
11. Ask about the level of participation of female farmers in the extension activities.
12. Ask if there are any socio-cultural norms that limit their encounter with female farmers or any other challenges that exist in the district.
13. Ask if there are variations in the output of farmers who get extension services and farmers who do not.

14. Enquire about their general concerns of the female's participation in the extension service in the District as the Director of Agriculture? (for Agric Director).
15. Ask if there is any special extension package for only female groups or individuals. (for Agric Director)

THANKS FOR YOUR PERMISSION.

Appendix 2

SURVEY QUESTIONNAIRE TO BE ANSWERED BY FEMALE SMALLHOLDER FARMERS

I am a student of the University for Development Studies. As a partial fulfilment for the award of the MSc in Innovation Communication, I am undertaking a research into "EFFECTS OF ACCESS OF FEMALE FARMERS TO AGRICULTURAL EXTENSION SERVICES ON AGRICULTURAL PRODUCTIVITY IN THE TALENSI DISTRICT"

Please be assured that any information you provide shall be used for academic purposes only and so be kept confidential.

SECTION A: SOCIO DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Please tick (√) the spaces below or provide appropriate information possibly

1. Gender: [ ] Male [ ]Female
2. Age: [ ]=/>19yrs [ ]20-29 yrs [ ]30-39 yrs [ ] 40-49 yrs [ ] 50-59 yrs 60+ [ ]
3. Level of education: [ ] No formal education [ ] Basic [ ] Secondary [ ] Tertiary
4. Marital status: married [ ] single [ ] Divorced [ ] separated [ ] widowed [ ]
5. Household size: 1-5 [ ] 6-10 [ ] 11-15 [ ] 16-20 [ ] 20and above [ ]
6. Occupation of respondent

   Trader [ ] Farmer [ ] Teacher [ ] Artisan [ ] Security Service [ ] Un-Employed [ ]

   Others (Specify) …….
7. What are your sources of income (Multiple choice is allowed)?

   Rent [ ] Agriculture [ ] Commerce/Service [ ] Remittances [ ] mining [ ] Others specify ……..
8. Status of accommodation Rented [ ] Owner (Fully paid) [ ] Family house [ ] Squatter

   Other …….

9. Monthly Sales/income GHC 1-1000 [ ] GHC 1001-2000 [ ] GHC 2001-3000 [ ] GHC 3001-4000 [ ] GHC 4001 and above [ ]
10. Monthly household expenses? GHC 1-200 [ ] GHC 201-400 [ ] GHC 401-600 [ ] GHC 601-800 [ ] GHC 801-1000 [ ] GHC 1000-1200 [ ] GHC1200-1500 [ ] GHC1500-2000 [ ]
11. What is the fuel used often for household cooking? Firewood [ ] Charcoal [ ] LP Gas [ ] Other [ ]
12. Number of meals per day? Once [ ] Twice [ ] Three times [ ] None [ ]
13. Type of business activity? Food processing [ ] food crops cultivation [ ] livestock farming [ ] Other……..
14. For how long have you been in this business? Less than one year [ ] one to five years [ ] six to ten years [ ] eleven to fifteen years [ ] sixteen to twenty years [ ] above twenty years

Perceptions of Female Farmers To Extension Services

15. Are you aware of agricultural extension service? Yes [ ] No [ ]

16. If yes, have you benefited any extension service in the past? Yes [ ] No [ ]

17. If yes, what type of extension service have you benefited ……..

18. How often do you get these services? Always [ ] Rarely [ ] Never [ ] Mostly [ ]

19. How many times did the extension agents visit your farm during the last cropping season? ……

Assess the challenges of smallholder female farmers in accessing agric extension

TO BE ANSWERED BY FEMALE FARMERS

From the statements below, please indicate by ticking (√), your level of agreement or disagreement to the following statements, using the scale below: **1=Strongly agree 2=Agree 3=Not applicable 4=Disagree 5= Strongly disagree**

		LEVEL OF RESPONSE				
		1	**2**	**3**	**4**	**5**
41	There are limited Capacities of extension agents to meet the extension needs of female small holder farmers					
42	There are cultural set ups that hinder female from agricultural extension service					
43	Inappropriate and Lack of female-friendly technologies					
44	Women are handicap for language barrier					
45	High illiteracy rate is a factor that hinder women's participation in the agricultural extension service					
46	Limited participation of women in management committee					

From the statements below, please rank the challenges the applicable to you based on their relevance to you from **1-6** with one being the most profound challenge and 6 the list challenge.

Challenges		**Rank**
46	There are limited Capacities of extension agents to meet the extension needs of women small holder farmers	

47	There are cultural set ups that hinder women from agricultural extension service	
48	Inappropriate and Lack of women-friendly technologies	
49	Women are handicap for language barrier	
50	High illiteracy rate is a factor that hinder women's participation in the agricultural extension service	
51	Limited participation of women in management committee	

The type of extension service delivery to the productivity of the smallholder female farmers

TO BE ANSWERED BY FEMALE FARMERS

52. Did you have any contact with extension agents in the past? Yes [ ] No [ ]
53. If yes, what extension service did you get? Advisory [ ] famer field schools [ ] training and visits [ ] technology transfer [ ]
54. Did you get any benefit out of your contact? Yes [ ] No [ ]

Indicate the type of benefit by completing the table below

From the statements below, please indicate by ticking (√), your level of agreement or disagreement to the following statements, using the scale below: **1=Strongly agree 2=Agree 3=Not applicable 4=Disagree 5=Strongly Disagree**

		1	2	3	4	5
55	Extension contacts have increased your output level					
56	Extension contacts have increased your income level					

57	Extension contact has given you access to financial credit					
58	Extension service has increased your output quality					
59	Extension contacts have given you access to market					
60	Extension service increased your access to input credit					

Complete the table below for your farm output

	Crop	Capital invested	Number of acres	Cost of fertilizer	Cost of labour	Output in bags	Price per bag GH₵	Income GH₵
61	Maize							
62	Rice							
63	Millet							
64	Soya beans							
65	Beans							
66	Sorghum							
67	Pepper							
68	Onions							
69	Tomatoes							
69	Others							

THANKS FOR YOUR PERMISSION.

Appendix 3

SURVEY QUESTIONNAIRE TO BE ANSWERED BY DISTRICT AGRICULTURAL EXTENSION AGENTS

I am a student of the University for Development Studies. As a partial fulfilment for the award of the MSc in Innovation Communication, I am undertaking a research into "EFFECTS OF ACCESS OF FEMALE FARMERS TO AGRICULTURAL EXTENSION SERVICES ON AGRICULTURAL PRODUCTIVITY IN THE TALENSI DISTRICT"

Please be assured that any information you provide shall be used for academic purposes only and so be kept confidential.

From the statements below, please indicate by ticking (√), your level of agreement or disagreement to the following statements, using the scale below: **1=Strongly agree 2=Agree 3=Not applicable 4=Disagree 5=Strongly Disagree**

Logistical challenges of the District Agricultural Extension Agents

TO BE ANSWERED BY EXTENSION AGENTS

		LEVEL OF RESPONSE				
		1	**2**	**3**	**4**	**5**
23	Agricultural extension agents lack motor bikes to enhance their service delivery					
24	Agricultural extension agents lack pick-up to enhance their service delivery					

25	Agricultural extension agents lack bicycles to enhance their service delivery					
26	Agricultural extension agents lack adequate rain coat to enhance their service delivery in the rainy season					
27	Agricultural extension agents lack enough extension uniforms to enhance their service delivery					
28	Agricultural extension agents lack adequate note pads to enhance adequate note taking in the field.					
29	Agricultural extension agents lack Wellington boots to enhance their service delivery					
30	Agricultural extension agents lack Vaccines and syringes to enhance their service delivery					
31	Agricultural extension agents lack Measuring tapes to enhance their service delivery					

From the statements below, please rank the challenges base on their severity from **1-9** with one being the most profound challenge and 9 the list challenge.

Challenges	**Rank**

32	Agricultural extension agents lack motor bikes to enhance their service delivery	
33	Agricultural extension agents lack pick-up to enhance their service delivery	
34	Agricultural extension agents lack bicycles to enhance their service delivery	
35	Agricultural extension agents lack adequate rain coat to enhance their service delivery in the rainy season	
36	Agricultural extension agents lack enough extension uniforms to enhance their service delivery	
37	Agricultural extension agents adequate note pads to enhance adequate note taking in the field.	
38	Agricultural extension agents lack Wellington boots to enhance their service delivery	
39	Agricultural extension agents lack Vaccines and syringes to enhance their service delivery	
40	Agricultural extension agents Measuring tapes to enhance their service delivery