UNIVERSITY FOR DEVELOPMENT STUDIES

PERCEIVED COMPETENCE, ROLE CLARITY AND JOB SATISFACTION OF AGRICULTURAL EXTENSION OFFICERS IN THE NORTHERN REGION OF GHANA

BY

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THESIS SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL EXTENSION, RURAL DEVELOPMENT AND GENDER STUDIES, FACULTY OF AGRIBUSINESS AND COMMUNICATION SCIENCES OF THE UNIVERSITY FOR DEVELOPMENT STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF PHILOSOPHY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my original work, and that no part of it has been presented for another degree in this University or elsewhere.

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ABSTRACT

The study was undertaken to examine perceived competence, role clarity and job satisfaction of agricultural extension officers in the Northern Region of Ghana. The study adopted both qualitative and quantitative techniques in presenting and analyzing the data. Primary data came from self-completing questionnaire and interview schedule guides covering 280 respondents. This was done by using stratified sampling technique, one of the probability sampling techniques. This was followed by coding the responses in order to reduce the responses to similar categories. With the aid of the Statistical Package for the Social Scientists (SPSS), the data was presented using the combination of frequency distribution tables as well as charts such as pie and bar chart to facilitate the discussion and interpretation of the data. The study revealed that the field officers are not disappointed as agricultural extension workers; it further revealed that agricultural extension officers have adequate administrative support from their head offices. It was also discovered that the extension officers were able to define their respective roles in the field. The competence of the extension officers are sometimes not fully utilized due to absence of well-planned programme. The study recommended among others the need for the Ministry of Food and Agriculture to immediately ensure the total implementation of its training and development policy to enhance the job skills of the extension workers. The extension service personnel's performance will further be improved if they are provided with incentives to enable them put in more effort in order that agricultural extension receives the desired attention. Also, issues relating to motivation of the agricultural extension officers should be considered as a top priority, especially the remuneration packages of the agricultural extension officers.

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DEDICATION

This work is dedicated to all those who supported me in diverse ways.

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LIST OF ACRONYMS

Acronym	Full Meaning
AgSSIP	Agricultural Support Services Implementation Program
AKIS	Agricultural Knowledge and Information System
BOPP	Bomso Oil Pail Plantation
CSIR	Council for Scientific and Industrial Research
COCOBOD	Cocoa Board
DAES	Department of Agricultural Extension Services
FAO	Food and Agricultural Organisation
FM	Frequency Modulation
ICT	Information Communication Technology
IPM	Integrated Pest Management
IQ	Intelligence Quotient
IITA	International Institute for Tropical Agriculture
ISODEC	Integrated Social Development Committee
FFSs	Farmer Field Schools
MAFF	Management Advice for Family Farms

MoFA	Ministry of Food and Agriculture
NARS	National Agriculture Research Systems
NGOs	Non-Governmental Organisations
SARI	Savannah Agricultural Research Institute
SMS	Subject Matter Specialists
T&V	Training and Visit
TOPP	Twifo Oil Palm Plantation
TOT	Training of Trainers
UES	Unified extension systems

CHAPTER ONE

1.0 Introduction

This section discusses the background, problem statement, research questions, objectives of the study, research hypothesis, justification of the study, definition of terms and organization of the chapters.

1.1 Background to the Study

The term extension was first used to describe adult education programmes in England in the second half of the 19th century; these programs helped to extend-the work of universities beyond the campus and into the neighboring community (Rolings, 1990). The term was later adopted in the United States of America, while in Britain it was replaced with "advisory service" in the 20th century. A number of other terms are used in different parts of the world to describe the same or similar concept.

Extension work in this contemporary era has evolved to exert a robust and convenient access to education by adults, in fundamental education and in public information with the developing continent being the main target. Central of extension delivery service is the achievement of food quality and sufficiency. Meanwhile the quality and sufficiency of food is determined by the methods of production, harvesting, haulage, processing, storage, packaging and marketing. These appropriate methods have to be communicated through right extension channels to the beneficiaries for the right impact to be achieved.

Ministry of Agriculture (MoFA) continues to improve the efficiency, and relevance of its extension system (Agricultural Extension Handbook, 2006). This is clearly in response to the growing need for approach to extension to be improved to suite the socio-economic dynamics of the poor and vulnerable. Consequently this need tasks the extension agent to be dynamic, proactive and pragmatic. The public extension system seeks to initiate pro-poor extension programmes in targeted areas and for specific groups of the population who have been identified to be more prone to poverty.

Agricultural extension has over the time evolved to innovation communication given the fact that the extension agent needs to deliver information about new technology in a manner that is understandable to the most ordinary intended beneficiary, no matter their level of education. Consequently, according to Rolings (1990, p. 36), "a combination of factors, such as the need for people in the modern densely populated countries to heed the common good, and the preoccupation with public health and environmental protection, has led to efforts to change voluntary behavior through communication". The process of implementation, analysis of results and reflection had therefore led to the emergence of a body of knowledge serving practitioners, managers and trainers who are professionally engaged in these efforts. Rolings calls this body of knowledge as 'extension education', 'extension studies', or 'extension training'.

Laidlow, (1962) cited in Obeng (1989) as posing that extension work, otherwise referred to as extension education, or simply extension as being the act of bringing education to people who are not ordinarily in close contact with an educational

institution and who are likely to remain without education, training, or information required for improvement in their living conditions unless it is brought to their door steps. Extension, in reality, is a process of diffusion, which refers to the spread of knowledge from a central source to a large number of people who can benefit from it.

Adesina et al. (2001) argued that, extension as an organized system seeks to equip people with the needed aid or guidelines for self-help. Reservoirs of knowledge such as research centres, laboratories, various educational institutions, the libraries, official documents and government reports remain archival or less utilized. It is the work of extension that makes this knowledge available and puts it into use to achieve their intended purposes such as solving problems of people and their communities (Agyedu, 2007).

FAO cited in Obeng (2012) defines agricultural extension as "an informal out-of-school educational service for training and influencing farmers (and their families) to adopt improved practices in crop and livestock production, management, conservation and marketing. The focus of agricultural extension is not only in respect of teaching and securing adoption of a particular improved practice (innovation), but also with changing the outlook of the farmer to the point where he will be receptive to, and on his own initiative continuously see, means of improving his farm business and home (Chang, 1962). However, Roling (1990) is of the view that most governments use agricultural extension as one of the instruments for developing the agricultural industry, not for helping individuals.

The task of extension service is to provide research-based information, education programmes and technology transfer focused on the issues and needs of the people, enabling them to focus on decisions about their economic, social and cultural well-being (Long and Swortzel, 2007). Agricultural extension agents feel satisfied with their jobs when extension educational programmes contribute to satisfactory results that accomplish predetermined programme goals. These goals could be simply informative in nature or goals for invoking change in the clientele's present method of performing a task. Employees that have a high job satisfaction care more about the quality of their work and therefore are more committed to their organization (Scott, 2005).

Robbins and Judge (2009) stressed the fact that, job satisfaction creates a pleasant feeling that directs a positive work attitude of not only the extension officers but also farmers. Lee-Kelley et al. (2007) referred to job satisfaction as a broad assessment of extension workers' attitude or overall acceptance, contentment, and enjoyment in their work. The task rewards and organizational rewards relating to agricultural extension leads to job satisfaction. A satisfied agricultural extension worker is more likely to be creative, flexible, innovative, and loyal. The job satisfaction influences various aspects of work such as efficiency, productivity, absenteeism, turns over the rates and intention to quit. It plays a central role in organization (Tsigilis, et al., 2006).

Shanmugasun et al. (2005) reported that, in agricultural extension role clarity of task were found to be positively and significantly correlated with job satisfaction of extension, which undoubtedly is a determinant of the perceived competence of

the agricultural extension officer. There is therefore a kind of positive relationship between job satisfaction and perceived competence of the agricultural extension officers. Job satisfaction is important because the entire agricultural productivity is influenced by quality of the job satisfaction through the role clarity, which invariably affects the performance of the extension agents which eventually impact on agricultural production. Okwoche, et al (2012) stated that good performance of agricultural extension workers can be achieved through appropriate agricultural extension policies and strategies that are tailored towards improving leadership competency of agricultural extension workers and enhancing their organizational commitment.

1.2 Problem Statement

Jaccobsen (1983) has stated that almost every country in the world today has an agricultural extension service of one kind or another and that agricultural extension work has spread throughout the modern world because, in the long run, no country can afford to neglect its rural population who are predominantly agriculturalists. He further states that every nation needs adequate and dependable supply of staple food stuffs and fibre for all its people and this has necessitated the realization by present day governments to boost the morale of farmers in order to increase agricultural production above the subsistence level so that farmers can produce enough to feed and clothe themselves and their families and also feed those in other occupations like health, education and the like. It is only when a nation has

stable agricultural base that social and economic development can also be achieved.

MOFA, as part of its mission statement, seeks to ensure that farmers adopt innovative and environmentally sustainable methods of farming to safeguard the environment and at the same time produce food of high quality and safety for consumption or to be used for processing as well as increase productivity. To achieve this, improved technologies are being developed by research to be used by farmers to enhance their productivity. According to Rahman (2007) if technologies developed by research are not adopted and used by farmers to improve their productivity, then all effort put into research to develop these technologies is in vain. The agricultural extension service unit of the Ministry of Food and Agriculture has the statutory functions to transfer technologies to farmers. MOFA reaches out to farmers through extension agents recruited by for that purpose.

The rational of extension is that, there is a two-way information flow, which requires people to serve as a link between the farmers and research centres, hence the role of agricultural extension agents is indispensable. Agricultural extension agents employed by MOFA are expected to play important roles in the extension services to facilitate an effective transfer of knowledge to the farmers for increased production. Hence, the government often commits a lot of resources to train extension agents to who are well grounded both in theory and practice in innovations and technologies that can improve productivity of farmers.

Despite the efforts initiated to propel the agricultural extension, the current level of technology adoption is low (Kakumanu, 2016). Meanwhile technology is used as an option to enhance high productivity. The low adoption of technology can partly be attributed to the poor quality of extension agents. Extension agents can properly function or perform their roles well when there are no questions about their competence, role clarity and job satisfaction. As Ibrahim et al. (2008) put it, competence of agricultural extension officers have always been in doubt, since in certain situations their respective roles have not been clearly defined, thereby making job satisfaction among extension workers in being farfetched.

Again, Robbins and Coulter (2005) emphasized the fact that, extension workers' job competence is determined by the extreme satisfaction. An extension worker with high level of satisfaction has a positive attitude towards his job; however, the limited support received from the government and some of the beneficiary communities of the extension services. The inefficiency can be attributed among other things to the clarity of role the extension agent should play in carrying out his task, the satisfaction he gets from his work and the level and type in particular of education he receives before being sent out onto the field. The level of education and the type of training determines to a large extent how competent the agent is. There are limited studies that have tried to combine these important variables (role clarity, job satisfaction, competence and performance). This study therefore sought to assess perceived competence, role clarity and job satisfaction of agric extension officers in the Northern Region of Ghana.

1.3 Research Questions

1.3.1 Main Research Question

To what extent does the perceived competence, role clarity and job satisfaction determine the performance of agricultural extension officers in the northern region of Ghana?

1.3.2 Specific Research Questions

1. What relationship exists between perceived competence and extension performance?
2. What relationship exists between role clarity and extension performance?
3. What is the relationship between job satisfaction and extension performance?
4. What challenges hinder the effectiveness of performance of extension agents?

1.4 Research Objectives

1.4.1 Main Research Objective

The main research objective is to investigate perceived competence, role clarity and job satisfaction and how that affects the effectiveness of agricultural extension agents in the Northern Region of Ghana.

1.4.2 Specific Objectives

The specific objectives are;

1. To examine the relationship between perceived competence and extension performance.

2. To examine the relationship between role clarity and extension performance.
3. To examine the relationship between job satisfaction and extension performance.
4. To identify challenges that hinder the effective performance of extension agents.

1.5 Justification of the Study

Extension agents can only perform their roles effectively if they have adequate knowledge in the roles they are expected to perform. The study would help to uncover the effectiveness of the extension agents, which is important for policy makers to incorporate into their activities in order to improve extension service delivery. Also the well informed the farmers are, the better they are able to improve production. Hence, understanding the level of competence, role clarity and performance, and work towards improving it would lead to an effective extension service delivery to farmers, and consequently increased production. In addition, the work would assist MOFA to explore the possible ways of supporting the extension officers in realizing their objectives.

Furthermore, the study is of great importance to policy makers, administrators, Non-Governmental Organisations (NGOs), and the general public, as it will throw more light and make clear the problems associated with issues of competence, role clarity and job satisfaction of the extension officers since this will position MOFA in providing modalities for providing the needs of the extension workers. The study will also help MOFA to take good decisions pertaining to the allocation of resources for the effectiveness of extension workers.

1.6 Scope of the Study

The study basically focuses on extension agents, where variables such as role clarity, job satisfaction and level of competence of extension officers, limited to Northern region of Ghana. This means that the study geographically was carried out in Northern Region.

1.7 Definition of Terms

•**Innovation:** an innovation is referred to as "the idea, practice or object perceived as new by the individual or other unit of adoption"(Rogers, 1995).

•**Technology:** this is defined as any knowledge, skill, idea, method, and tool which is completely new or is an improvement of an existing alternative designed to be implemented or to replace an existing farming practice.

•**Adoption:** refers to an instance where a target farmer agrees to use or practice an innovation, which has been introduced to them.

•**Transfer:** it is the process of transmitting a scientific knowledge, skill, idea, or method to the intended category of farmers solely to improve their farming activities or boast yield.

•**Extension:** Hallman et al. (2007) defined extension as an education process or extension work aimed at bringing education (thus agricultural technology) to people who are not generally in close contact with an educational institution and who are likely to remain without education, training, or information needed for an improvement in their living conditions unless it is brought to them.

•**Agricultural extension:** refers to services that help in disseminating information about agricultural innovations to potential adopters (Ogunlana, 2003).

1.8 Organization of the Study

This study was organized into five (5) chapters. The first chapter, which is the introduction, deals with the background to the study, statement of the problem, objectives, research question, justification and scope of the study. The second chapter dealt with the review of related literature. The research methodology was discussed in chapter three. Chapter four was basically on analysis and interpretation of the data obtained from the field. Finally, the summary, conclusion and recommendation were captured in chapter five.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter is to review literature related to extension service delivery. It also seeks to identify how these factors influence role clarity, job satisfaction and perceived competence of extension services in the Northern Region in terms of their socio-economic characteristics and job related variables including age, sex, level of education and number of years in extension service delivery. It also seeks to discuss factors that influence role clarity, job satisfaction and perceived competence of extension agents in the Region.

2.1 Definitions of Extension

Different people have defined the term agricultural extension differently. Akor, (2009) defines agricultural extension as the set of organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills, and technologies to improve their livelihoods and well-being. Extension has been recently defined as systems that facilitate the access of farmers, their organizations 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 (Anderson, 2007).

However, World Bank (2010) agrees that services must be provided in a fundamentally different way than in the past, emphasizing on a framework for

agricultural service provision that might be effective under current circumstances in developing countries. This framework puts agricultural extension into a much broader context of a demand-led service market. Hence the term "advisory services" is used instead of "extension", to include the many non-traditional tasks, such as market information, micro-finance, health issues, farmers' self-organization and the like (Anderson, 2007).

2.1.1 The concept of Agricultural Extension Approach

Agricultural Extension Services in Ghana dates back to the nineteenth century with the aims of increasing agricultural productivity and production. For research to be effective there must be an efficient mechanism whereby its findings can be used by the end users (farmers). The process of making research findings available is the function of extension. Accordingly, research produces innovations, which are passed on through MOFA extension agents (Beintema & Marcantonio, 2009). Developing a medium to exchange information is vital because it is necessary to integrate information from researchers, farmers and extension agents to be able to develop technologies that work.

According to Beintema and Marcantonio (2009), complex issues arise when talking about different approaches to extension as different authors use different words in explaining the concept (approaches/systems/models). Whereas Agarwal (2001) used "system", Duvel (2004) referred to it as an "approach". This represent the model they both adopted to explain the nature of agricultural extension services.

Extension approach refers to the doctrine for an organization, which informs, stimulates and guides such aspects of the organization as its structure, mission, vision, leadership, its programs, strategies, its resources and linkages. An extension approach influences the choice of the target audience, the resource requirements and the allocation, their methodologies employed, and the results and impacts of the extension efforts.

The meaning of an approach also differs. Akeredolu (2008), referred to an extension approach as the basic planning philosophy that is being adopted by an agricultural extension organization. This helps extension workers to understand the fundamentals, concepts and functional methods of extension adopted to fulfill its aims, especially in the planning phase.

Hallman et al. (2007), explained an approach as a way in which different guiding principles are applied in a specific situation to fulfill different purposes and/or target specific development beneficiaries, whereas Jones and Garforth, (2009) see an approach as consisting of a series of procedures for planning, organizing and managing the extension institution as well as for implementing practical extension work by staff with technical and methodical qualification and using the necessary and appropriately adapted means.

2.2 Types of Agricultural Extension Approaches

Several approaches tested, and adopted by countries in Africa to improve the technology dissemination process are identified. There are different approaches, which all extension agents used in performing their functions:

- All function through non-formal education-this particular task is an informal assignment, which is undertaken outside the normal school situation. It is usually carried out in the night.

- All have content related to agriculture- the various programmes under the extension services are organized and tailored towards the achievement of agricultural goals.

- All use communication techniques and aids- the key players especially the extension workers use communication channels to transmit information for the benefit of the farmers in their jurisdiction.

- All seek to improve the capabilities of rural people- the primary objective of the agricultural extension services are aimed at developing and enhancing capacities of the beneficiary farmer groups in the various communities.

Hemidy and Cerf (2011) came out with different ways of categorizing extension approaches. Many extension approaches currently used in Ghana and other sub-Saharan Africa (SSA) are combinations of these broad categorization (Table 2.1). The different categories adopted by both authors are shown in Table 2.1.

Table 2.1: Extension Approaches

1. General agriculture	1. Public
2. Commodity	2. Commodity
3. TV	3. T V
5. Agricultural participatory approach	4. NGO
6. Project approach	5. Private Sector
7. Farming systems research and extension (FSR/E)	6. Farmer Field Schools (FFS)

Source: author's construct, 2015.

Each of these approaches can be characterised by the following dimensions:

- The basic assumptions made by those who established it. This refers to the problems and issues perceived that require a particular strategic approach to solve them. The assumptions are influenced by the views of the nature of the human, technical, biological, physical, social, cultural, administrative, political, and diplomatic ecosystem in which extension will function.

- The purposes which it is designed to achieve. "Purpose" refers to the underlying principles of the basis for the approach. It also determines what it is supposed to achieve; the goals.

- The way in which the control of program planning is carried on, and the relations of those who control program planning to those who are the main target audience for the program.

- The nature of the field personnel including such aspects as their density in relation to clientele (ratio of field staff to clientele), levels of training, reward systems, origin, gender and transfers.

- The resources required, and various cost factors, such as the heavy reliance on manpower compared with more use of mass media etc.

- The typical implementation technique used in executing the program.

- The variables or outputs by which the system measures its success. That is, which kinds of criteria are used to determine whether or not the system doing what it was designed to do?

In Ghana approaches of agricultural extension range from the top-down commodity-based of the pre and post-independence to more participatory approaches (Fiagbey, 2009). Specifically, the approaches that are still being used include the World Bank's Training and Visit (T&V), commodity, and participatory approaches and most recently farmer field schools (FFSs). Another approach is the innovative Information Communication Technology (ICT) based approaches which provide advice to farmers on-line and other approaches such as the promotion of mobile phones and community radio stations (Jones & Garforth, 2009). These approaches are discussed below.

2.2.1 Training and Visit (T&V)

T&V is one of the earlier approaches that focused on transfer of technology using a top-down, one-size-fits-all approach. This approach was introduced after the department of agricultural extension services (DAES) had been organized under the unified extension systems (UES) concept. The then Upper regions followed by the Volta region first adopted it. Existing extension organizations were merged into a single national system. This approach was designed on the assumption that farmers lack technical knowledge for increasing productivity, hence the solution was therefore to provide them with modern technical knowledge. The approach is based on a set of managerial and organizational principles that are of broad

applicability and which, when applied together, constitute an extremely powerful managerial tool (Van den Ban, 2010).

Van Crowder (2009) held the opinion that, this approach differs from the general extension by its emphasis on frequent in-service training for staff, regular visit to farmers' farms, promotion of extension/research linkage and improved extension management. In the process of service delivery, Subject Matter Specialists (SMS) usually gives training to frontline extension agents on new but relatively simple technical issues; the extension agents then proceed to train farmers and/or farmer groups on the new technologies. The extension agents transfer concentrated standardized extension messages concerning a selected crop or livestock, input supplies, or credit line, produced research institutions to the farmers. Training and Visit (T&V) was implemented in developing countries willing to use T&V nation-wide.

The hierarchical line of command of the T&V extension system in Akeredolu et al. (2009) was seemingly fitting the political culture of many countries. This approach uses extension methods including group discussions, seminars and in-service training courses for extension staff and farmers, on-farm demonstrations and farmer field days (Akeredoluet al., 2009). Specific tools were: contact to a determined number of farmers' groups, handouts and technical fact sheets. T&V had been designed as a cost-efficient extension system. The delivery of messages was considered economic, as large numbers of farmers could be reached fortnightly.

Doss et al. (2001) showed that the T&V approach made extension more effective, led to agricultural growth, and realized high rates of return. Van den Ban (2010) found some benefits in terms of staff training, increased geographical coverage, and improved linkages with research. However, due to the relatively high financial outlay required, the T&V approach could not be sustained at the end world bank funding. The approach suffered setbacks in the 1980s due to the cost of financing coupled with criticisms of irrelevance, inefficiency, ineffectiveness, and lack of equity Van Crowder (2009). It was also criticized due to the passive role allocated to farmers, as well as the failure to factor in the diversity of the socio-economic and institutional environments facing farmers and ultimately in generating behaviour change (Van den Ban, 2010).

2.2.2 Participatory Approaches

The passive role of farmers in the T&V approach necessitated the promotion of participatory approaches where the need for empowerment of the farmer will be paramount. In this approach the role of the extension agent is to facilitate an in-depth situation analysis by the farmers themselves at the onset of their working relation. Once farmers have become aware of the causes of their problems and have identified the most pressing ones, the extension agent provides technical knowledge and technologies, which may be useful to address the problems identified. For this approach to work well, extension agents need not only agricultural expertise, but also good analytical, pedagogical, and facilitating skills (Amezah & Hesse, 2010).

What makes this approach participatory is that farmers are the principal decision-makers in defining goals, planning, implementing, and evaluating development activities. This helps in strengthening farmers' problem-solving abilities from the start. In relation to community development, the existence of a local government and a decentralized administration is a precondition. If the local government is not dominated by elites, then the accountability, effectiveness, and efficiency of local services can be substantially improved. Reality still looks different, but too much political pressure from donors could mean that solutions are imposed, running the risk of being rejected, and subsequently degenerating into a mechanistic application of the instruments.

Moreover, participatory approaches depend strongly on a conducible political and administrative environment. Moreover, for finding appropriate technological answers to farmer questions, researchers must take into account local constraints, risks, and cultural preferences. Therefore, it is best to involve farmers at all stages of the research process, from the definition of research issues, through the planning phase, implementation, and evaluation of research results.

2.2.3 Farmer Field School (FFS)

FFS is a participatory method of learning, technology development, and dissemination based on adult-learning principles such as experiential learning. Farmer field schools (FFS) were introduced into sub- Saharan African in the mid-1990s. They are being used in at least 27 SSA countries (Amezah & Hesse, 2010).

FFS originated from Asia, where it was developed to promote integrated pest

management (IPM) programs. However, in Ghana FFS are being used for a variety of activities, including food security, animal husbandry, and soil and water conservation.

Delp et al. (2010) revealed that, in this approach, it is quite explicit that, farmers meet regularly for the duration of an entire cropping season. They learn by observing what is happening on the field, by discussing in groups what they have observed, and by hands-on management of the field from pre-planting to harvest. Through group interactions, attendees sharpen their decision-making abilities and are empowered by learning leadership, communication and management skills. Some of the participating farmers are selected to receive additional training so as to be qualified as farmer-trainers, who then take up training responsibilities (for some fee, possibly paid by their community) with official backup support such as training materials (Denzin & Lincoln, 2012).

This approach aims to increase the technical competence of farmers concerning a single crop (e.g. rice, cotton, beans) or livestock, and to strengthen the social competence and confidence of farmers. Technical competence of farmers is increased by:

- Hands-on learning about agro-ecosystem concepts;
- Experiential learning in small groups: group members observe the happenings on the field, reflect together, decide together, and observe the results during later meetings;

- Combining farmers' knowledge with scientific ecological knowledge.
- Social competences of farmers are fostered by:
- Group discussion and reflection processes;
- Presenting and explaining small group decisions to a larger audience;
- Energizing exercises for group building.

The FFS addresses the problem of accountability in two ways: (i) The trainers who conduct the field school are bound by a strict timetable of sessions within a pre-specified curriculum, which can be easily verified by supervisors; and (ii) Continuous interaction with a cohesive group of trainees creates accountability to the group, which is enhanced by the participatory nature of the training methods. Accountability is presumed to be even greater when farmer-trainers who are members of the same community administer the training. These features are thus expected to ensure the quality and relevance of the service (knowledge) provided to the farmers (Denzin & Lincoln, 2012).

The main weakness of FFS is its cost, which is likely to raise problems of financial sustainability. The intense training activities are expensive per farmer trained, so the amount of service actually delivered (the number of farmers trained) on a national level would be small. According to Okoth et al. (2012), FFS costs 62 $ USD per farmer trained. Cost-effectiveness and financial sustainability could be improved if farmer-trainers were to become the main trainers, perhaps with significant community funding, and if informal farmer-to-farmer communications

were effective in facilitating knowledge diffusion. Others include limited diffusion of knowledge from FFS-participants to fellow farmers and the concentration on one crop or animal species at a time (Okoth et al., 2012).

A related concept to FFS is the farmer study circles. Study circles, much more informal than FFS, provide opportunities for group exploration and learning, to gain knowledge on whatever topic members decide. A group of people meets regularly, with no external "expert" (although resource persons may be called in or facilitators may guide the groups). Study circles allow a forum for people to learn and solve their own problems. The Swedish Cooperative Centre focuses on human rights, improved livelihoods, and increased incomes, and have developed at least 68 different study circle guides for issues ranging from crops to HIV/AIDS (Bebbington et al., 2012).

The Farmer Field School is basically a school without walls. In view of this, Jiggins et al. (2009) identified the following under listed farmer field schools:

- Participatory training techniques are used to achieve learning objectives.
- Learning objectives are not limited to those of the work domain alone, but also include interactive and empowerment domains.
- The approach is integrated and organized so that participants are not the objects of training but are able to use their experience as the subject of training.
- Participants share in the control of decision making.

The main features of FFS, according to Anandajayasekeram et al (2001) are:

- Field is primary resource
- Participatory discovery learning process where farmer participation is enhanced
- Hands-on experience sharing i.e. experience forms and the basis for learning
- Capacity building and empowerment
- Stakeholder ownership on the process, content and knowledge derived.
- Covers entire production cycle or key steps in the management practices of the crop livestock systems.
- Can handle multiple technologies and support services simultaneously.
- It is group-based, with in-built flexibility.
- Curriculum is dictated by the specific production system, and priority problems and the local conditions of the farmer groups.
- If properly implemented, enhances farmer-to-farmer extension of technologies and information.

Farnworth (2010) on his part put up the following classical approach to establishing FFS:

- Ground working
- Identification of FFS participants
- Identification of the FFS site
- Training of Trainers (TOT)
- Establishment of FFS

- Follow ups by TOT grandaunts
- Field days
- Graduation
- Farmer-Run FFS

Further, it was noted that participatory extension approaches emerged in the late 1980s after it was realized that most technologies developed by researchers alone were inappropriate for smallholder farmers (Jurgen et al., 2011). Extension services initially have often been structured and operated on the assumption that farmers are largely passive, and that they are illiterate and therefore ignorant, and they are unable to innovate or to integrate new cropping and livestock practices into their established agricultural systems. In participatory extension, farmers take part in the design, determine management conditions and implement and evaluate the experiments (Hagmann, 2009).

Jurgen et al. (2011) give the following characteristics of participatory extension approaches:

- They integrate community mobilization for planning and action with rural development, agricultural extension and research.
- They are based on equal partnership between farmers, researchers and extension agents who learn from each other and contribute their knowledge and skills.
- They aim to strengthen rural people problem-solving, planning and management abilities.

- They encourage smallholder farmers to learn through experimentation, building on their own knowledge and practices and blending them with new ideas.
- They recognize that communities are not homogenous but consist of various social groups with conflicts and different interests, power and capabilities. The goal is to achieve equitable and sustainable development through negotiation of interests among these groups and by providing space for the poor and marginalized in collective decision making.

According to Farrington and Martin (2009), strong farmer participation is essential if farmer goals and problems are to be identified properly. The authors again point out that; a very important purpose of participatory approaches is the empowerment of the farmers and other resource-poor. Farmer participation in technology development increases adoption. Evidence from Philippines indicate that farmers were involved in breeding high yielding variety of rice and as a result of such collaboration between farmers and researchers farmers developed their own high yielding variety and thus enhanced the farmers' experimental knowledge and skills.

The Savannah Agricultural Research Institute (SARI) used multidisciplinary research teams to develop promising soil management technologies (Mureithi, 2010). These promising technologies were validated and disseminated through Farmer Field School (FFS) approach. In West Africa (Benin, Cameroon, Ghana and Nigeria), a multi-disciplinary research team diagnosed cassava plant protection technologies and developed low-input cassava plant protection technologies

(Akeredolu, 2008). These were up scaled and disseminated to farmers in the sub-region.

It is vital to note that no amount of research will lead to sustainable agricultural extension development if the countries in Africa do not address the constraints to sustainable agriculture. Most importantly, they have to use an extension strategy that allows the stakeholders and the out growers to be part of the research agenda. When the stakeholders in agricultural research are part of the planning and implementation, they have the sense of belonging and ownership. The use of FFS extension approach will make the farmer to be central to agricultural research, training and dissemination.

Multidisciplinary research teams bring into the research agenda scientists from different backgrounds. These differences in background will not only assist in problem solving, but will help in making research more relevant to the needs of the farmers and other users. Farmer Field School as a model will be the most appropriate methodology for validation and dissemination of agricultural technologies. This will lead to people-oriented and sustainable agriculture in Africa.

The Decentralized Extension System assumes that farmers' challenges could be understood and solved better at a local level (MoFA, 2014). With the Decentralized Extension System, the power and decision to plan and implement extension programs have been transferred from the national and regional levels to the district level. The main objectives of this approach are to promote responsibilities,

participation, and program ownership at the district level (MoFA, 2014). Optical illusion

However, the Decentralized Extension System does not emphasize decision making by key stakeholders and the farmers. Evaluation of the effectiveness of the public sector extension approaches has indicated general dissatisfaction (Ntifo-Siaw and Agunga, 2012). Almost all approaches in one way or another have placed much emphasis on technology transfer, though many of the extension field workers were not trained in developing farmers' capabilities. These extension approaches also utilize a top down approach, leaving little room for farmers' initiatives and participation. Extension goals and programs were set at national, regional, and district agricultural development units and communicated to local farmers. It is for this reason that efforts have been initiated to develop the capability of both agricultural extension students and their clients, farmers.

2.2.4 The Commodity Approach

This approach as Kenyon and Fowler (2010) indicates is generally organized through parastatal organizations or private sector firms. The basic characteristic of this approach is that the production system is vertically integrated from input supply to the technology adoption and marketing of the produce. Farmers (i.e. out-growers) produce a certain quantity and quality of a crop, animal species or animal product, and sell it to the company which is partnering them. In return, the company (sometimes also called sponsor or purchaser) provides inputs, credit, as well as

extension, quality management (standards) and marketing services. It usually focuses on a single one cash crop (Kenyon & Fowler, 2010).

These companies are often private multinational companies, processing plants or government agencies. However, small companies, farmer co-operatives, or individual entrepreneurs can be running out grower schemes. In Ghana, companies running this scheme include COCOBOD, BOPP, TOPP, GREL, and GCCL among others. Under favourable conditions, this approach may provide smallholder farmers with an array of agricultural services to which they otherwise would have no access. This type of arrangement is becoming increasingly relevant as public service delivery to the agricultural sector declines and the involvement of the private sector in providing agricultural services increases. For it to be sustained, there should be an improved two-way communication between management and extension staff and farmers which is crucial for making the commercial relationship successful and beneficial to all in the long run.

According to Kenyon and Fowler (2010), the coordination of production process must involve:

- Identifying suitable production areas
- Selecting farmers
- Forming working groups (farmers)
- Providing material inputs
- Providing logistical support
- Setting and controlling product and production standards

- Purchasing the product.

While the provision of extension advice must involve:

- Good extension staff (knowledge, communication skills, empathy with farmers)
- Providing suitable and profitable technology
- Clarifying the timing of production and harvesting activities
- Clarifying and checking the standards required
- Organizing training programmes for extension staff and farmers.

Jones and Garforth (2009) revealed that, the advantages associated with the coordination of production process include high returns on crops, increasing the income of farmers as well as their technical and managerial skills while reducing farmers' risks and uncertainties. It may also provide small and medium farmers with access to profitable competitive markets to agricultural inputs, technology and advice from which they would be excluded otherwise. One of its disadvantages is that extension content is limited to technical and administrative or commercial aspect of the particular commodity or crop. Farmers become dependent on commodity organizations for advice, inputs and sale of crops.

In order to support contract farming, government should ensure that: Existing laws do not constrain agribusiness and contract farming development; Contracts are backed up by law and an efficient legal system (ibid.); The necessary infrastructure is in place; Farmers are protected from purely exploitative relationships with

sponsors by checking whether or not the financial and managerial capacities of the sponsor are adequate to make contract farming a profitable business for all; Increasing the negotiating power of the out growers (Eaton/Shepherd 2001: 5)

Some potential problems, as Asiabaka and Mwangi (2011) state it, are:

- Farmers do not achieve the product quality demanded by the sponsor;
- Farmers fall into the debt-trap, if they cannot repay inputs and credits due to production losses, financial deductions, or lack of price guarantee by the sponsor;
- Farmers break the contract by selling the produce to a competitor of the sponsor;
- Antagonisms surface between men and women. Most contracts are made with male family heads while women, who do not receive adequate remuneration, often do the bulk of the work;
- Ecological damage is incurred by specific production, e.g. oil palms;
- Smaller farmers become excluded in the course of time from the scheme (efficiency issues) (en-ext).

Other innovative approaches are related to the rapidly expanding information and communications technology sector. Although ICTs are used in extension in countries such as China, India, and Chile, Africa has lagged behind in harnessing ICT potential for extension and other rural development issues. However, some examples exist; for instance, in Kenya and Uganda, mobile phone services provide cheap messages about crop price information via text messaging. In Tanzania, there are “market spies,” farmers who visit local markets and remain in contact with the village using mobile phones.

Following the review of the current status of extension, it provides other approaches that are being used in other countries. Some of these approaches not well known in Ghana today include fee for-service extension, which is provided for by the public (or another sector) and paid for by the farmers (Anderson & Feder, 2005). Small groups of farmers usually contract the services. This arrangement allows clientele to "vote" on programs and program scale by paying for them (Asiabaka & Mwangi, 2011).

Most of the examples of this model come from developed countries, such as New Zealand, which is completely privatized. Asiabaka and Mwangi (2011) argue that universal paid extension is not in the public interest, but that there is an optimal mix of public, private, and paid extension. Farmers could be stratified, allowing the commercial farmers to purchase services while smaller, poorer farmers are serviced by public extension.

In Uganda, the government has been implementing the Plan for the Modernization of Agriculture. One component created in 2001 is the NAADS program mentioned above, which has the goal of increasing market-oriented production through empowering farmers to demand and control extension services. NAADS is an innovative public-private extension approach. The main components of NAADS include decentralization, outsourcing, farmer empowerment, market orientation, and cost-recovery (Anderson, 2007).

Table 2.2: African Countries with their Respective Agricultural Extension Modules

Country	Current Model(s)
Angola	Rural Development and Extension Program; FFS
Benin	Participatory management approach; decentralized model; FFS
Burkina Faso	FFS
Cameroon	National Agricultural Extension and Research Program Support Project; FFS
Ethiopia	Model based on SG-2000 approach: Participatory Demonstration and Training Extension System; FFS
Ghana	Unified Extension System (modified T&V); pluralistic with NGOs and private companies part of the national extension system; decentralized; FFS
Kenya	Pluralistic system including public, private, NGOs; FFS; stakeholder approach (NALEP): sector-wide, focal area, demand-driven, group-based approach
Malawi	Pluralistic, demand-driven, decentralized; "one village one product;" FFS
Mali	Modified T&V; both private and parastatal services for cotton; FFS; SG2000
Mozambique	Government-led pluralistic extension; FFS
Nigeria	FFS; participatory; SG-2000
Rwanda	Participative, pluralistic, specialized, bottom-up approach; FFS
Senegal	FFS; government-led demand-driven and pluralistic system; FFS
Tanzania	FFS; group-based approach; SG-2000; modified FSRE from Sokoine. University of Agricultures Centre for Sustainable Rural Development; private extension; decentralized Participatory District Extension; pluralism

Uganda	Pluralistic; National Agricultural Advisory Services (NAADS) is demand-driven, client-oriented, and farmer-led; SG-2000; FFS
Zambia	Participatory Extension Approach; FFS

Source: Cohen and Lemma (2011). An Institutional Analysis of Agricultural Policies In Africa.

Each extension organization is a reflection of a particular purpose in its own setting. There are many different types of agricultural systems. Agricultural extension is broadly defined to include any non-formal education system whose clientele are rural people, and whose content is primarily agricultural (including crops, fisheries, livestock production and marketing). The different approaches found in the various extension systems, use a variety of strategies and a large array of methods and techniques. Table 2.2 provides the summary of the characteristics, institutional arrangements, strengths, weaknesses and recommendations of the four main approaches being used in Ghana.

2.3 Key Components of the Agricultural Extension Approach

Fiagbey (2009) identified the first component of agricultural extension approach to be electronic or cyber Extension: Information and communication technology applications for effective agricultural extension services-Challenges, Opportunities, Issues and Strategies.

Access to information and improved communication is a crucial requirement for sustainable agricultural development. Modern communication technologies when applied to conditions in rural areas can help improve communications, increase

participation and disseminate information and sharing of knowledge and skills. The challenge is not only to improve the accessibility communication technology to the rural population but also to improve its relevance to local development (Fiagbey 2009).

2.3.1 Use of Radio

Fiagbey (2009) disclosed that, radio is a powerful communication tool in the dissemination of agricultural extension information. The author revealed its potential for effective agricultural extension in terms of reach and relevance local broadcasting can achieve especially if done in a participative way. It however, requires that the policy is elaborated with a focus on the use of FM (FM) stations. Presently, most of the district extension plans has no budgetary allocation for development and broadcasting of agricultural messages. However, some NGOs such as Farm Radio, Simli Radio, are complementing in that regard.

2.3.2 Ensuring Stakeholder Participation

Morris et al. (2009) acknowledged the fact that, the extension system must be able to help people think about their own problems and find appropriate solutions. The role of the extension worker in this context becomes that of a facilitator for exchange of ideas and information among stakeholders. The participatory extension can be seen as a flow of information from farmer to farmer achieved through exchange visits, training workshops, farmer- extension-interactions (adaptive trial, participatory evaluation of research results) farmer-market-farmer

interactions (collective supply of inputs, collective marketing of outputs, market information) (Morris et al., 2009).

2.3.3 Broadening the technical Mandate of Extension

Morris et al. (2009) concedes that as an agricultural extension component, the method of broadening the technical mandate of extension needs to be broadened to include coverage of topics such as marketing, inputs synchronization and environment and encouraging bottom –up grassroots extension program planning at the village level and to establish a demand- driven, gender sensitive and holistic extension system.

2.3.4 Involving both Public and Private Institutions.

Morris et al. (2009) reiterated that, the component should be broadened to include other stakeholders in the planning and delivery of extension services with government performing the functions of national policy guidance, coordination among various actors, quality control, resource mobilization, manpower development, monitoring, research, evaluation, impact assessment and documentation.

2.3.5 Joint Planning and Monitoring

Establishment of inter- agency/inter-disciplinary coordination, collaboration and linkage mechanisms according to Jurgen et al. (2010) is an effective tool for promoting joint planning and programming by the AKIS (Agricultural Knowledge and Information System) actors such as extension, research, education and rural

indigenous centers through the institutions of measures like formation of public and private stakeholders extension communities are able to ensure participation of small farmers at all operations levels.

Establishent of national Association of Extension provides services as a think tank to ensure development and application of bottom-up policies and plans, need-based skill, oriented curricula and operational strategies which are attractive service conditions for extension personnel and financing of extension (Jurgen et al., 2010).

2.3.6 Human Resource Development

Another important component of the agricultural extension service in the view of Matata et al. (2011) is the development of an extension human resource management plan aimed at reforming pre-service education and in-service training through improvement in curricula and teaching-training methodologies, development of teaching, learning materials, so as to bring extension education in line with worldwide extension reforms, and inclusion of career development path covering salaries, promotion and training opportunities for extension professionals at par with specialists in other agricultural disciplines like research and education.

The development of databases in connection with this includes those involving the application or electronic information technologies in support of extension work (cyber extension).

2.3.7 Management Advice for Family Farms (MAFF)

This approach which draws farmers closer to the extension workers is a form of an intervention that is characterized by the special link established between advisory services and farming. This type of practice accounts for most of the country's agricultural production. In Ghana, family farms mostly referred to as subsistent farming are often complex in structure and functioning. This complexity must be taken into account in each case (e.g., farms based on the extended family or the nuclear family, the geography of production units, consumption and accumulation (Asiabaka & Mwangi, 2011).

Since farms are increasingly linked to the market and expected to sell a greater proportion of their production as export crops and, increasingly, food crops and animal production for supplying a rapid growing urban population, their dependence on extension services is great essence. Structural readjustment plans due to extension services have resulted in the removal of stabilization mechanisms (i.e., price supports and subsidies) and

the progressive withdrawal of government intervention from numerous support activities. New stakeholders (i.e., farmers' organizations, NGOs, private companies) are emerging and their participation in the delivery of extension services is being reinforced (Feder et al., 2009).

This will enable the out growers to be in a position capable enough to withstand economic risks for farmers, and accelerate differentiation between farm households and between regions. The extension services also create new opportunities that could be beneficial for the categories of stakeholders in the agriculture sector. In Hanson and Just (2011) view, through extension services, new information and training facilities for farmers are provided to enable farmers improve their management capacity, taking into account the technical, organizational, economic and financial aspects of family farming. The diversity of situations and hence of types of producers, require new approaches in delivery of extension services using appropriate tools (Van den Berg,2010, p. 65). For almost a decade,

questions have been raised within the agricultural extension sector as to how to respond to new demands from farmers at a time when public resources for extension are shrinking.

According to Rivera and Zijp (2010), agricultural extension services have taken various initiatives for delivering support and advisory services to farmers. For several years, several government interventions have been supporting approaches that are referred to as' Management Advice for Family Farms (MAFF). Workshops that are intended to share experiences with management advice for family farms (MAFF) are organized on regular basis. These represented different situations in terms of major farming systems concerned (cotton and cereals, purely rain-fed cereals, irrigated rice, and market gardening). Before the workshop, each team involved analyzed its own case with the help of an analytical framework. An initial analysis of the ten case studies provided a good picture of different aspects concerned: methods and tools used, institutional arrangements, funding

mechanisms and performance achieved by the farmers (Simpson & Owens, 2012).

As York and Solaún (2011) put it, the workshops usually gather participants, including farmers' representatives, extension advisers and researchers, all involved in the cases, for several days of discussions and analysis. This differentiated audience provided different points of view and prompted in-depth debates, especially where the interests of the farmers' representatives and technicians diverged. The participants analyzed each case, focusing on methods and tools, innovative practices, access to inputs and credit, the role of advisers, funding mechanisms and partnerships. At the end of each session the facilitator and the reporters drew up conclusions, which were discussed with the participants (Braun, 2009).

2.3.8 New Funding Mechanisms

Identification and inclusion of financing of extension services by the public sector and other private sector agencies is very relevant (Matata et al., 2011). Collaboration by NGOs and producers' associations through public private

partnerships, and separation of the functions of services delivery from the financing and ensuring satisfactory resource mobilization, allocation, disbursement and utilization are crucial.

Mettrick (2013) further added that, the public sector has been accused of inefficiency in extension services delivery especially with regards to the Television and the Farmer Field Scheme funding. Extension to valuable commodities such as cocoa, cotton, oil palm and rubber can be paid for through the marketing arrangement but privatization of extension to resource poor farmers to plant food crops may not be practical. This implies that, companies and agencies that deal in market-oriented commodities can deliver and pay for extension services, whiles majority of the farmers focus on extension on food crops. However, some public-private partnership in extension can be explored.

- Public sector pays private sector delivery advisory services. In this case, the Ministry can sign a contract with an NGO or private company to deliver extension on specific commodity or to undertake general extension. This was tried under the Ministry's AgSSIP (Van de Ban, & Hawkin, 2008). Through the agricultural extension of the FAO ministry, these companies, unlike the government extension staff who do other menial activities, focused on extension delivery although the cost of service delivery was higher than the financial commitment on the MOFA extension staff. The question also arises if the government will be committed to paying for

contracts on extension delivery, even in the face of diminishing government research.

- Establish service provider's forum. Government provides funds to improve the capacity of private services provider to supplement government efforts at services delivery. The focus here is to cede off some of the extension functions to the private sector (especially at the market extension in which the private sector be driven by profit modules (Mureithi & Njue, 2011).

Agricultural extension in Ghana has mainly been in the domain of the public sector, namely the Ministry of Food and Agriculture (MoFA, 2010). Agricultural extension as a system assists farm families through educational activities in improving farming techniques, increasing production efficiency and income, and bettering the living, social, and educational standards of rural people (FAO, 2011). While different agricultural extension approaches have been applied in Ghana, the three main approaches employed by the public sector, MOFA, include the General Agricultural Extension Approach, Training and Visit (T&V) System, and the Decentralized Extension System (MoFA, 2010). The first two approaches have been applied in the past, while

the General Agricultural Extension Approach is the current extension approach.

The General Agricultural Extension Approach is the traditional extension system practiced by the public sector of the Ministry of Food and Agriculture with the Government of Ghana bearing most of the cost involved (Ntifo-Siaw and Agunga, 2014). The main goal of this approach is to increase the productivity of subsistence farmers who grow different food crops. This approach assumes that information and technology are available that are not being used by small-scale farmers. It was hypothesized that agricultural productivity would increase if this information and technology were to reach local farmers (Amezah and Hesse, 2010). A large field staff employed in various agricultural development units, located in the districts, regions, and national headquarters, is responsible for introducing the innovations to local farmer.

2.4 Review and Categorization of Extension Delivery Approaches in Ghana

As Cohen and Levinthal (2010) reveals, the intent of this review is to highlight certain fundamental notions in order to promote a better understanding of agricultural extension approaches and to suggest the utility of comparison, in particular for the Directorate of the Extension Services Department of the Ministry of Food and Agriculture. This will also provide those (policy makers) concerned with changing these systems to better understand where changes are needed and where resources might best be allocated. This review of extension systems is useful for effective and efficient extension delivery and will also provide an intellectual insight and the basis for practical action.

Agricultural extension is commonly identified with activity whereby agricultural extension workers interact with and teach farmers improved farming practices, new techniques and more productive or more efficient technologies or packages of technologies. Large numbers of these agricultural extension workers are organized into an agricultural extension system, which provides them with a constant supply of useful extension messages, technical and administrative supervision, and logistical support (Cohen &Levinthal, 2010).

2.4.1 Farmer Needs and Extension Service

It was revealed by Duffour (2009) that farmers do recognize and appreciate the services of extension in the field for their production through to marketing of their produce. According to the farmers, extension services is helping in training in group formation, disease and pest control, credit and financial support, input supply,

livestock management, general agronomic practices, chemical application storage of grains, tractor and implement supply, and marketing.

Table 2.3: Distribution of Farmers' Needs

Farmers needs	Frequency of farmers	Percentage
Training/group formation	225	28.7
Disease and pest control	113	13.3
Credit/financial support	125	14.8
Demonstration	20	2.3
Input supply	151	17.9
Livestock management	44	5.2
Storage services	28	3.3
General agronomic practices	15	1.5
Tractor and implement supply services	60	7.1
Others	98	11.4
Total	841	100

Source: Akeredolu (2008).South African Journal of Agricultural Extension.

However, there are some other challenges that farmers want extension to address, and emphasis laid on some of the aforementioned services depending on the priorities of farmers. Duffour (2009) analysis of farmers, have demanded and continue to demand training/group formation service from the extension staff. This is because, the group formation helps in strengthening farmers′ bargaining power with traders, reducing transaction costs for inputs supplies and output buyers, economies of scale and facilitating savings and access to credit from financial institutions rather than on an individual basis, foster unity among members and also bargain for better deals (on the input/output market).

The least service demanded is usually general agronomic practices; this seems to be the most offered service by extension that farmers need not to demand before they are offered. This means that extension is offering what farmers do not necessarily need. From this analysis and the contemporary views of extension services regarding value chain analysis, business plan development, commercialization of agriculture, contract signing etc., it is imperative for extension to offer such services that would help farmers approach farming as a business.

It is possible that either farmers are not aware of such services or think that the extension staffs do not have what it takes (human resources in terms of quantity and quality) to deliver such services. Farmers also feel they are mostly not involved in the development of extension packages, and this eventually leads to extension workers offering services that are not of priority to farmers.

2.5 Biographical Characteristics of Extension Agents

Chale (2009) revealed that, personal characteristics which are objective and easily verifiable or obtainable from records include age, gender, marital status, number of dependants and length of service within organization (extension service) influence the efficiency or otherwise of extension delivery (productivity, absence, turnover and satisfaction).

2.5.1 Age and Performance

It is a widespread belief that job performance declines with increasing age. Thus age has a reverse correlation with competence. Consequent to this postulation, aging work force is likely to register a dwindled competence. The situation has probably being aggravated by the fact that mandatory retirement is proscribed (Chale, 2009).

Thompson (2002) revealed that, age has effect on turnover, absenteeism, productivity and satisfaction. The older you grow, the less likely you are to quit your job. This is because; fewer alternative job opportunities exist for the aging or the aged. Aside, older workers are less likely to resign due to higher wages, longer paid vacations, more attractive pension benefits as a result of long tenure among others.

2.5.2 Age and productivity

In Cohen and Lemma (2011) view, just as in the case of age and performance, productivity also declines as people advance in age. One assumption Cohen and Lemma put across is skills, especially speed, agility, strength and coordination decays over time. These tendencies are precipitated and exacerbated in an unfortunate instance when the worker indulges in smoking and excessive alcoholism.

Another convincing supposition is that prolonged job boredom and lack of intellectual stimulation contribute to reduced productivity though there is no

evidence between age and performance. This is because any evidence, available or observable, if any, is counterbalanced by experience cultivated by the employee.

2.5.3 Age and Job Satisfaction

Deininger (2009) indicated that, among professionals of age up to 60 year, there is positive association of fulfillment of job. However, for non-professionals there is a fall in job contentment during middle-ages but arise in the later years thus creating a U-shape relationship. The author further added that, in practice, only a limited amount of effort and time is spent on planning, and much time is devoted to assessment and monitoring relating to ages and job satisfaction of the extension staff. Sometimes tools are used that are unwieldy, like exhaustive records of farm structural elements, of crop monitoring data, and of income and expenditure data. In most cases, farm record keeping can be limited to essential characteristics and performance rates.

2.5.4. Gender and Performance

Deininger et al. (2006) has shown that, there are no consistent male-female differences in problem solving ability, analytical skills, competitive drive, motivation, sociability or learning ability. The author however indicated minor differences in psychology, which shows that women are more willing to conform

to authority while men appear more aggressive and more likely to have expectations of success. The basic assumption nonetheless is that there is no significant difference in job productivity between males and females. However, evidence from this study has revealed no gender imbalance in job role clarity, satisfaction and competence.

2.5.5 Gender and Turnover

Djoudi and Brockhaus (2010) hold that females have higher turnover rates compared to males whiles other studies reveal no difference. Conclusion on the relationship between these two variables is therefore subjective as there is no enough evidence.

Djoudi and Brockhaus (2010) have again unequivocally revealed that there are higher rates of absenteeism among women than among men. This is due to maternity leaves, home and family responsibilities. The females who are mostly owners of family farms usually use specific methods and tools that most importantly are diversified in order to respond to the variety of demand. The author further indicates that, this thus ensures gradual development of tools for dealing with questions as diverse as crop or herd management, estimation of production costs, management of the family workforce and

paid labor, self-sufficiency, food crop management, cash flow management, and scheduling of investment (Djoudi and Brockhaus, 2010).

Depending on the situation, the different approaches put emphasis either on technical and economic analyses, or experimentation with new technologies, or financial management and accounting. The tools used (e.g., teaching materials, information sheets, and farm logs) are aimed at changing farmers' perceptions, stimulating reflection, promoting the monitoring of activities and proposing scenarios for change (Djoudi and Brockhaus, 2010).

2.5.6 Marital Status and Performance

Doss (2002) has largely indicated that married employees have fewer absences, undergo less turnover and more satisfied with their jobs. Thus, a steady job is more valuable and important to married employees since it guarantees some financial security to their families they are bread winners to. This is likely to be the case for conscientious and satisfied employees who are likely to get married. However, the trend appears dicey in divorce cases and in cohabitation.

2.5.7 Number of Dependence and Performance

Farnworth (2010) has indicated positive correlation between number of dependents and absence from work, especially among female workers. This holds for job satisfaction too. The author however added that, there is contradictory evidence between number of dependents and turnover; some are positive whiles others are negative.

2.5.8 Tenure and performance

Jones and Garforth (2009) have indicated that the higher the tenure (seniority), the lower the absenteeism. This implies there is negative correlation between tenure and absenteeism. This is equally the case with seniority and turnover; thus the higher the tenure the less turnover.

Akor (2009) believes tenure and performance are used for training and advice giving purposes and focus on indicators for decision-making, which are meaningful for farmers, such as gross margin per crop or the quantity of cereals per "mouth to nourish". One should avoid recording tedious and often useless data. In several cases tools were elaborated with strong farmer participation since the process of reasoning is more important than the calculated outcomes themselves (Baker, 2000).

Within the tenure and performance framework, training officials of the farmers must have access to relevant information on improved practices, marketing opportunities, prices, and local technical and commercial references (Beintema & Marcantonio, 2009). The extension staff as Beintema and Marcantonio (2009) reiterates should be trained in using specific tools for understanding the agrarian situation (zoning and typology.). They need refresher course on methods used elsewhere, on new technologies and on institutional developments in agriculture. Such upstream information and training services could be delivered by a co-ordination centre run by the MAFF system itself, or by external sources, such as research institutions, information systems, or universities.

2.5.9 Abilities of Key Players

Jones and Garforth (2009) refer to an individual's capacity to perform the tasks in a job and comprise two sets of skills: intellectual skills and physical skills. It is indisputable that there are no two individuals with the same skills and abilities. These differences make us either relatively superior or inferior to others in the performance of certain tasks and activities.

They further indicated that, intellectual ability has to do with mental activities such as IQ tests, GRE, TOFEL, among others, which are used to estimate ones mental aptitude. The dimensions of intellectual ability include aptitude, verbal comprehension, perceptual speed and inductive reasoning.

Generally, Kariuki and Place (2005) recognized the fact that, occupying a higher hierarchy in an organisation demands a more general intelligence and verbal abilities in order to be able to perform successfully. Tests that assess verbal, numerical, spatial and perceptual abilities are valid predictors of job proficiency. Physical abilities on the other hand become more important for performing less skilled and more standardized jobs in the lower part of the organisation. Management needs to consider employees physical capabilities when dealing with jobs that require stamina, manual dexterity, leg strength, among others.

2.5.10 Basic abilities in performance of physical tasks

Keller (2008) identified certain basic abilities involved in the performance of physical tasks including; dynamic strength, trunk strength, static strength, explosive strength (i.e. strength factors); extent flexibility, dynamic flexibility (i.e. flexibility factors); and body coordination, balance and stamina.

a. Strength Factors

Thompson (2002) identifies the following types of strengths:

- Dynamic strength is the ability to exert muscular force repeatedly or continuously over time.

- Trunk strength refers to the ability to exert muscular strength using the trunk, especially abdominal muscles.
- Static strength is the ability to exert force against external objects.
- Explosive strength shows the ability of an individual to exert a maximum energy in one or a series of explosive acts.

b. Flexibility Factors

Van Crowder (2009) put across flexibility factors as follows:

- **Extent Flexibility** is the ability to move the trunk and back muscles as far as possible.
- **Dynamic Flexibility** is the ability to coordinate the simultaneous actions of different part of the body.

Other factors Van Crowder (2009) identified include;

- **Body Coordination** refers to the ability to coordinate the simultaneous actions of different parts of the body.
- **Balance** refers to maintaining equilibrium despite forces pulling off balance.
- **Stamina** is the ability to continue maximum effort requiring prolonged effort over time.

According to Keller (2008), personality is considered very significant and constitutes the sum total of ways in which an individual reacts and interacts with others (i.e. the sum of an individual's traits or characteristics). It is often described

in terms of measurable personality traits a person exhibits. An individual's personality traits consist of heredity, environment as well as situational conditions.

Manfre (2011) who referred to heredity as traits offspring acquire from parents said they are factors that determine the coping mechanism of an individual. These include physical structure, facial attractiveness, sex, temperament, muscle composition and reflexes, biological rhythms, among others. Rahman (2007) believed that, these factors are considered to be influenced by who one's parents are. The argument that holds therefore is that the genetic composition of an individual dictates the characteristics of his or her personality. The valid questions to this assertion are; is that always the case? And what accounts for changes in people's behavior? Recent evidence has indicated that genetics account for about 50% of personality differences and about 40% of job interest variations (Yaker, 2010).

Environmental factors according to Manfre (2011) exerts pressure on our personality formation including culture, early conditioning, family norms, norms of our friends, and social group norms. Norms are standards of behavior typical or accepted within a group or society. They can alternatively be referred to as established standards of behaviour maintained by a society. The environments we are exposed to shape our personalities. These norms, attitudes and values of our culture are passed on from generation to generation and are seen to be consistent over time. Examples are work ethics, dress codes, and inheritance system in both matrilineal and matrilineal systems.

In Meinzen-Dick et al (2010) proposition, situational conditions also play a role in farmers' adaptation to the methods of agriculture**.** The situation, in which an individual finds himself or herself, influences the effects of heredity and environment on personality. It's observed that people's personalities change in different situations due to the demands of those situations. However, certain situations are more relevant than others in influencing situations. The constraints imposed on behavior differ from situation to situation. Examples are ceremonies like church service, funerals, and parties among other.

2.6 Administrative Factors

Administrative factors that can influence the competence of an extension worker include role clarity, Job satisfaction, tenure (seniority) and extension contact.

2.6.1 Role Clarity

Available literature indicates that a dysfunctional individual and organizational consequences stem from the existence of role conflict and role ambiguity in complex organisation (Rizzo et al, 1970). Obviously, for individuals to perform their functions and duties effectively there is the need for clearly defined roles to guide them. In the wake of this, Rogers (2005) has conducted research on the concept of role clarity some of which merit considering.

According to Rizzo et al (1970), role is most typically defined as a set of expectations about behavior for a position in a social structure. Expectations define

behavioural requirements or limit ascribed to the role by the focal person filling that position, or by others who relate to the role or simply have notions about it. The expectations are conditioned by general experience and knowledge, values, perceptions, and specific experience with focal person(s). They serve as standards for evaluating the worth or appropriateness of behavior, and they tend to condition or determine such behaviuor.

On the basis of this definition of role clarity Rizzo et al (1970) noted that, the role theory states that when the bevaviours expected of an individual are inconsistent, one kind of role conflict he will experience is stress, becomes dissatisfied, and performs less effectively than if the expectations imposed on him did not conflict. Role conflict can therefore be seen as resulting from violation of the two classical principles and causing decreased individual satisfaction and decreased organizational effectiveness.

According to the theory, every position in a formal organizational structure should have a specific set of tasks or position responsibilities. Such specifications of duties, or formal definitions of role requirements, are intended to allow management to hold subordinates accountable for specific performance and to provide guidance and directions for subordinates. If an employee does not know what he has the authority to decide on, what he is expected to accomplish, and how he will be judged, he will hesitate to make decisions and will have to rely on a trial and error approach in meeting the expectations of his superior.

Kahn et al (1964), also notes that the role theory states that role ambiguity, lack of necessary information available to a given organizational position will result in coping behavior by the role incumbent, which may take the form of attempts to solve the problem to avoid the sources of stress, or to use defense mechanism which distorts the reality of the situation. The theory further argues that, ambiguity should increase the probability that a person will be dissatisfied with his role, will experience anxiety, will distort reality, and will thus perform less effectively.

A review of the role theory indicates that ambiguity or lack of role clarity, is a direct function of the discrepancy between the information available to the person and that which is needed to adequately perform the role, (Kahn et al, 1964). Thus according to the theory, ambiguity should increase the probability that a person will be dissatisfied with his role, will experience both psychological and physical stress, will seek other opportunities for improving clarity satisfaction, will be less innovative, and will generally show lack of job interest.

2.6.2 Job Satisfaction

Job satisfaction is a complex and multifaceted concept, which can be referred as different things to different people, (Mullings, 2007). According to Mullings, job satisfaction is usually linked with motivation; however, the nature of this relationship is not clear. Satisfaction is though not the same as motivation. Job satisfaction is more of an attitude and an internal state. It could, for instance, be

associated with a personal feeling of achievement, either quantitatively or qualitatively.

It is often suggested that job satisfaction is necessary in order to achieve a high level of motivation and performance. However, although the level of job satisfaction may affect strength of motivation, this is not always the case, (Mulings, 2007). According to Mullings (2007), the relationship between job satisfaction and performance is an issue of continuing debate and controversy. One view, associated with the early human relations approach, is that satisfaction leads to performance. An alternative view is that performance leads to satisfaction.

2.6.2.1 Dimensions of Job Satisfaction

According to Mullings (2007), the level of job satisfaction is affected by a wide range of variables relating to individual social, cultural, organizational and environmental factors.

Individual factors include personality, education and qualifications, intelligence and abilities, age, marital status, orientation to work.

Social factors include relationships with co-workers, group working and norms, opportunities for interaction, informal organization.

Cultural factors include underlying attitudes, beliefs and values.

Organizational factors include nature and size, formal structure, human resource (HR) policies and procedures, employee relations, nature of the work, technology and work organization, supervision and styles of leadership, management systems, and working conditions.

Environmental factors include economic, social, technical and governmental influences.

These factors according to Mullings (2007) affect the job satisfaction of certain individuals in a given set of circumstances but not necessarily in others.

Mumford (1991) examines job satisfaction in two ways:

1. In terms of the fit between what the organization requires and what the employee is seeking and
2. In terms of the fit between what the employees are seeking and what they are actually receiving.

As a thought on job satisfaction, Mumford identifies five contractual areas by which this organizational/employee relationship can be examined: the knowledge contract, the psychological contract, the efficiency/reward contract, the ethical contract and the task structure contract. Below is the Table 2.4 for the five contractual area of job satisfaction.

Table 2.4: Five contractual areas relating to job satisfaction

Contractual area	The firm	The employee
The knowledge contract	Needs a certain level of skill and knowledge in its employees if it is to function effectively	Wishes the skills and knowledge they bring with them to be used and developed

The psychological contract	Needs employees who are motivated to look after its interests	Seeks to further interest private to self, e.g. to secure: achievement, recognition, responsibility, status
The efficiency/rewards contract	Needs to implement generised output, quality standards and reward systems	Seeks a personal, equitable effort-reward bargain and controls, including supervisory ones, which are perceived as acceptable
The ethical(social value) contract	Needs employees who will accept the firm's ethos and values	Seeks to work for an employer whose values do not contravene their own
The task structure contract	Needs employees who will accept technical and other constraints which produce task specificity or task differentiation	

Source: Mumford, E., 'Job satisfaction: a method of analysis', Personnel Review, Vo. 20, no. 3, 1991,p.14

2.6.3 Extension contact (Frequency)

Extension contact encapsulates information such as farmer's visits to extension worker for advice, frequency of visit by extension worker to farms to provide advice, attendance to extension meetings, or a course in extension planning area (Matata, Ajayil, Oduol and Agumya, 2008).

Agricultural extension services help in disseminating information about agricultural innovations to potential adopters (Ogunlana, 2003). Rahman (2007)

also indicated that farming experience has a positive and significant association with the adoption level of farmer thus ensuring effective extension delivery. The contact between extension personnel (veterinarians) influenced farmers to adopt improved pig production practices in their farms. It was also found by Adesina et al (2001) and Boahene et al (1999) that the rate of adoption is higher among farmers who had contacts with extension agencies. Similarly, Thangata and Alavalapatti (2003) observed that contact with extension staff is very important in promoting mixed intercropping and overall adoption of innovation in Malawi.

2.7 Effectiveness and Efficiency of Agricultural Extension Approaches

Evaluating the agricultural extension approaches is very complex because a wide range of factors influence agriculture output– including agro-ecological climate, availability and prices of inputs, market access, farm- and farmer-specific variables, and so on. According to Wu et al. (2005), biases inherent in attributing the impact of extension services on agricultural production mean that measured effects might result from pre-existing differences rather than the programme under evaluation.

The effectiveness of the extension approach in enhancing capacity building, technological adoption and ultimately improved agricultural output depends on key factors relating to the extension method used, the governance, capacity and management structures of the extension approach, as well as underlying contextual factors such as the policy environment, market access, characteristics of beneficiary communities and weather conditions. As noted in Birner et al. (2006), the reasons for effective service delivery will be diverse, including the appropriateness of the

advisory methods, the capacity and numbers of extension staff, and the management and governance structures of the organizations delivering the services.

And as highlighted by participatory models in particular, effectiveness may be also influenced by the degree of feedback (indicated by the dashed arrows in Figure 1) and the mechanisms of delivery of information from farmers to the research and extension system, and thus the role of farmers in formulating demand and their ability to exercise voice. This may depend in turn on the degree of decentralization, the ratio of extension officers to farmers, a responsive management approach, and indeed the use of participatory advisory methods (ibid.). The policy environment determines the overall orientation of the advisory service, the degree of resources devoted to it and the types of farmers targeted.

Characteristics of local communities, such as heterogeneity in terms of land- and asset-holdings, ethnicity, education, gender roles and the degree of social exclusion, will determine the ability of the extension services to penetrate communities and reach the disadvantaged, and the degree of farmer-to-farmer diffusion (Morris Met al., 2009). Finally, all of these factors, together with market access and weather conditions will determine the degree of adoption of techniques and final outcomes such as yields (for example, production per unit of land), income and empowerment are more likely to be achieved.

The review will aim to synthesize quantitative estimates of effectiveness of extension interventions relating to intermediate outcome such as knowledge acquisition, adoption and diffusion of technology, and final outcomes such as

agricultural yields, household income and poverty status. Because of the diversity of local agro-ecological conditions and farming systems across, and even within, developing countries, the specific technology, crops and management techniques recommended by extension programs will be different depending on the local context and needs of the farmers. Therefore, the focus of the review will be on extension as a *mechanism or tool* for improving farmers′ knowledge and management practices in a way that leads to improved agricultural productivity, income and welfare for farm households.

2.7.1 Information Dissemination as a Tool in Making Agricultural Extension Better

According to Yaker (2010) agricultural extension education enables the farmer and his family to develop knowledge, skills and favourable attitudes which empower them, to benefit from research and technology with the ultimate aim of raising their efficiency and achieving higher levels of living. In terms of using such knowledge, it could be said that, extension education provides the opportunity for farmers to learn and use the practical knowledge in solving the problems they face in their daily activities.

It is important to note that, change in whatever field one is engaged in, is more easily accepted when one recognizes and appreciates the reasons for the change. Extension therefore, could be described as the primary process through which the farmers can learn about the reasons for change, the values of change, the results that can be achieved and the uncertainties inherent in change.

Yaker (2010) in discussing the role of the contacted farmer in the extension system stated that most often, farmers are afraid of changing from their traditional practices because of the lack of alternatives ways of doing their work. Agricultural extension education provides the medium through which they become aware of these alternatives and to choose from the most desirable as well as the different methods available for carrying out their farming activities. Works by Agricultural Research Institutions such as the International Institute for Tropical Agriculture, (IITA) Ibadan, and Council for Scientific and Industrial Research (CSIR), for example have led to the production of high yielding varieties of crops such as oil palm, maize, cowpeas, cassava and yams. They have also developed the most efficient methods of cultivating these crops. But the farmer cannot benefit from these research results if the information, the newly developed knowledge or technique is not made available in the area of the operations of the farmer using the appropriate channels.

To sum up, Maunder described extension as: a system of service which assists farm people through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living, and lifting the social and educational standard of rural life.

Effective dissemination of agricultural technologies is crucial in agricultural development, especially the role played by extension agents. The effective dissemination of innovative technologies requires measures which ensure that

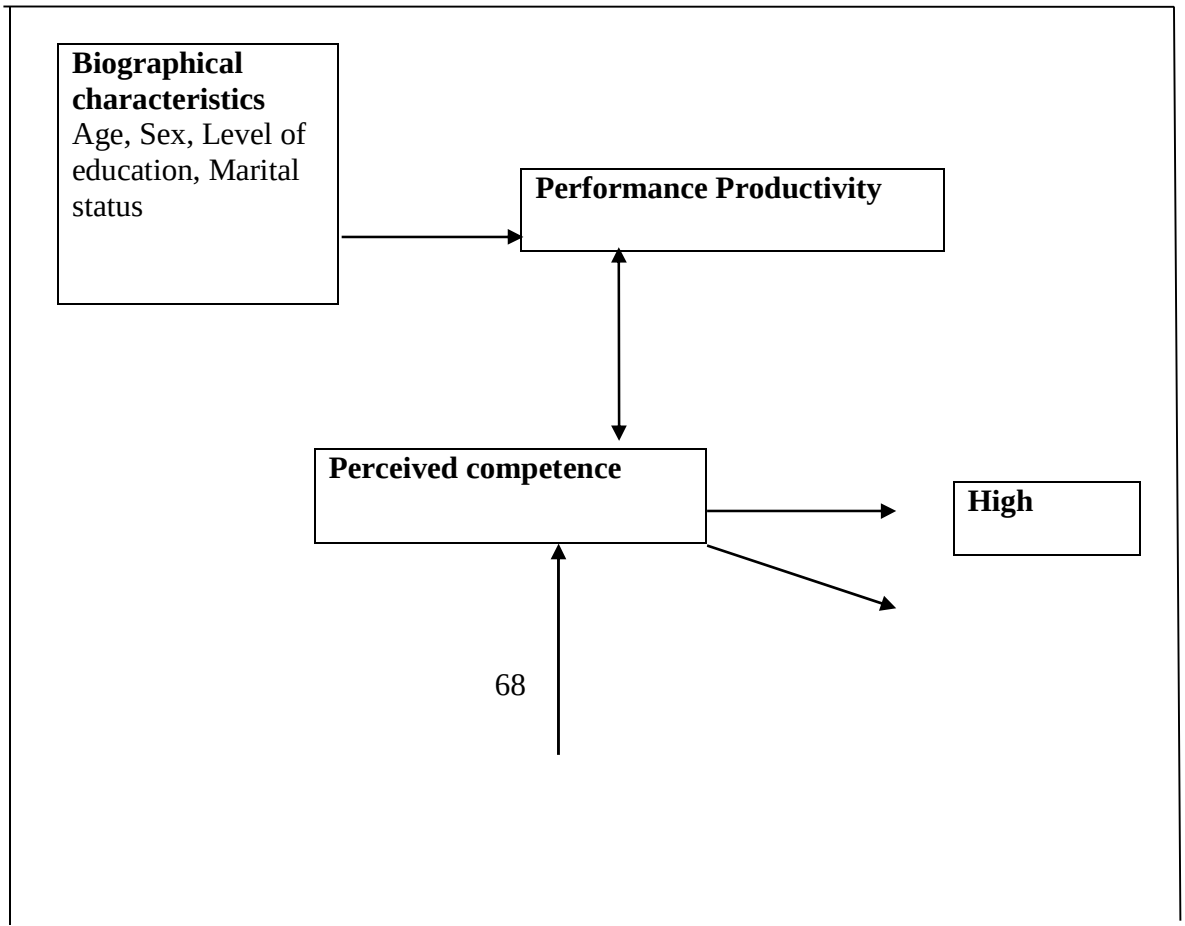
extension agents acquire the needed competencies to improve their effectiveness. Fiagbey (2009) suggested that, almost all the professional competencies should be learned or developed after extension agents are employed. This will require an articulated continuing education programme which addresses the specific professional needs of agents.

Need assessment of this kind serves as a tool that minimizes risk and portrays the picture needed by programme planners to ensure its relevance (Okorley et al., 2002). Apart from the facts above, there is the need to ensure that technology transfer is accorded the needed attention. This is because technology transfer or dissemination has been identified as the weakest link in most National Agriculture Research Systems (NARS).

In a review of World Bank and USAID activities in Africa an as identified by Hemidy and Cerf. (2011), research extension linkages constitute a limitation on realizing the benefits of research. Although agricultural technologies have and continue to derive great benefits for the private sector, public sector research and technology transfer institutions have in the past failed to provide research output and technologies that meet the user needs (Ngomane, 2003). This research extension linkage remains a critical area of concern to the small holder clientele in many developing countries and administrative factors such as competence, role clarity and job description hold key to effective research and farmer linkage.

2.8 Conceptual Framework

Conceptual framework is a type of intermediary theory that attempts to connect to all aspects of inquiry (e.g., problem definition, purpose, literature review, methodology, data collection and analysis). Conceptual frameworks can act like maps that give coherence to empirical inquiry (Agarwal, 2001). Because conceptual frameworks are potentially so close to empirical inquiry, they take different forms depending upon the research question or problem (Ngo & Yamada, 2010). A conceptual framework is a model that allows the researcher to explore the relationship among variables in a logical and prescribed fashion (Anderson, 1990). The theoretical or conceptual framework presents the context for studying the problem and can be viewed as a map for understanding the relationship between or among the variables of the study (Agyedu, Donor & Obeng, 2007). Below is the diagram of the conceptual framework for this thesis.



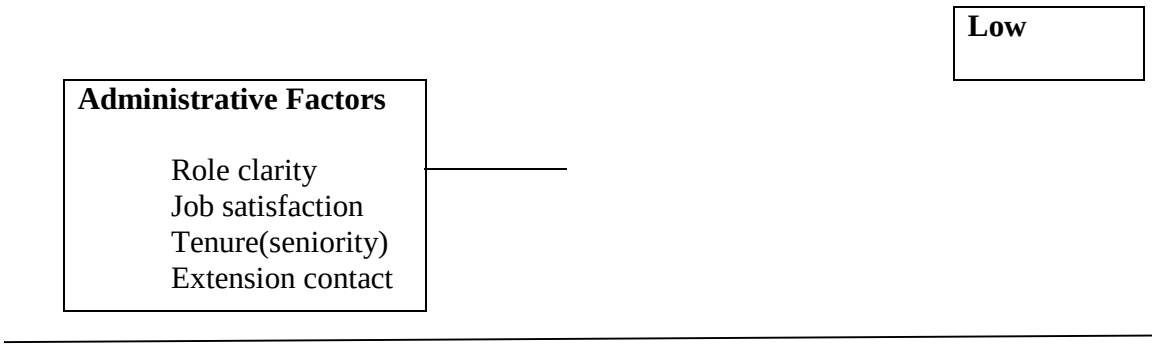


Figure 2.1 Conceptual framework

Source: Author, 2013.

The model above is the diagram of the conceptual framework of the thesis depicting interactions of the variables and their respective outcomes. That is, the biographical characteristics such as age, sex, education level and marital status relative to administrative factors including role clarity, job satisfaction, tenure (seniority) and extension contact give rise to how competence of agriculture extension officers is perceived. Consequently, output of the extension agents may depend upon either or both biographical and/or administrative factors.

Perceived competence index is labeled as high or low depending upon how Respondents' feelings were measured on a five level Likert scale, ranging from strongly agreed (SA) to strongly disagree (SD) with options as Agree, Strongly agree, Neutral, Disagree and Strongly Disagree. Higher response in favour of 'agree' signals high perception regarding competence of the extension agent while lower number of responses in favour of 'disagree' signifies low perception index and vice versa.

The double arrow connecting "Performance Productivity" and "Perceived competence" shows that each of the two could be mutually exclusive or one may give rise to the other depending upon how the biographical variable and the administrative factors interact.

Consequently, revelation of the relationships among the variable in the conceptual framework model above is shown in the analysis and interpretation of the data in chapter four.

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.0 Introduction

This section of the research deals with the description of the study area and reason(s) for the choice of the study area. It also deals with the research design, population, sample and sampling procedures, data collection techniques, instrument(s) used for data processing and data analysis.

3.1 Description of the Study Area

The Northern Region is the largest of all regions of Ghana. It is divided into 20 districts. The region's capital is Tamale. It covers an area of 70,384 square kilometres. The Northern Region is bordered on the north by the Upper West Region and the Upper East Region on the east by the eastern Ghana-Togo border, on the south by the Black Volta River and the Volta Lake, and on the west by the western Ghana-Ivory Coast border.

The Northern Region is much drier than southern areas of Ghana, due to its proximity to the Sahel, and the Sahara. The vegetation consists predominantly of grassland, especially Savannah with clusters of drought-resistant trees such as Baobabs or Acacias. Between May and October is the wet season, with an average annual rainfall of 750 kilometers 1050 mm (30 to 40 inches). The dry season is between about November and April. The highest temperatures are reached at the end of the dry season, the lowest in December and January. However, the hot Harmattan winds from the Sahara blows frequently between December and the beginning of February. The temperatures can vary between 14°C (59°F) at night and 40°C (104°F) during the day.

The political administration of the region is through the local government system. Under this administration system, the region is divided into 20 districts. Each District, Municipal or Metropolitan Area, is administered by a Chief Executive, representing the central government but deriving authority from an Assembly headed by a presiding member elected from among the members themselves (data files, northern regional coordinating council, 2010).

3.2 Choice of the Study Area

The Northern Region is one of the poorest among the regions in the Northern Ghana (ISODEC, 2012). The rise in the poverty level in the region has witnessed increases in migration of the youth to the south in search of greener pasture. Most of the female migrants especially the girls migrate to south to engage in a particular

menial job popularly called 'karyayie'. Consequently they become victims of dehumanizing conditions and the ripple effect assumes a national dimension. Furthermore, northern region is taunted as the bread basket of the nation given its immense potential to produce food in commercial quantity for both domestic consumption and export for foreign exchange. Meanwhile, adoption of innovations in farming has a huge potential of improving upon farming in the region and thus reducing the poverty index in the region which ultimately will go a long way to clump down on the migration of the youth to the south, ensure food sufficiency for the country among other benefits. However, achievement of this target largely rest on the shoulders of the extension agents of Ministry of Agriculture in the Northern Region, hence the need to study the extension agents in respect of their perceived competence, role clarity and job satisfaction.

3.3 Population of the Study

The term population, according to Agyedu et al. (2007) refers to the complete set of individuals (subjects), objects or events having common observable characteristics in which the researcher is interested in studying. For this study the target population comprises the beneficiary communities such as Karaga, Yendi, Tolon, Gushegu and Kumbungu which respectively has a population of 105 agricultural extension officers**.**

3.4 Research Design

Nworgu (1991) defines research design as a plan or a blueprint, which specifies how data relating to a given problem should be collected and analyzed. The research design, according to Agyedu et al. (2007), constitutes the overall plan adopted by the researcher to obtain answers to the research questions and for testing the hypothesis formulated. There are several methods available for this type of study. Some of these include the assessment or survey method, evaluation method, descriptive study and experimental study.

However, the survey approach was used to carry out this research due to its appropriateness for the study of a large population (Gay & Airasian, 2003). This choice is informed by the fact that the size of the sample data determines the test statistic to be used. Large samples have number of sample units equal to or greater than 40 and any sample less than 40 observations is defined as a small sample, (Kwabia, 2001).

From the above computation, this yielded 105 respondents in the selected communities; hence, the sample size for this study was 105. Ten interview schedules were administered on the selected extension agents.

3.5 Sampling Technique Sample Size

Multi-stage sampling technique was used: in this procedure, the researcher used

purposive sampling technique to select the agricultural extension officers since it is a technique that allows a researcher to select respondents based on the depth of experience on the subject.

Table 3.1: Selected Extension Agents from Five Districts

Name of District	Number of Extension Agents	
	Male	Female
Karaga	20	2
Yendi	18	2
Tolon	14	10
Gushegu	20	3
Kumbungu	10	6
Total	**82**	**23**

Source: Researcher's Construct

In effect, the entire target population was used as the sample size. Each of the selected districts was considered as a cluster, making it possible for the use of random sampling on the different cluster from the identified districts. This was used to collect data from respondents in the identified districts who were providers of the agricultural extension services.

3.6 Data and Data Collection

The data collection tools employed for data collection were discussed as indicated below:

3.6.1 Questionnaires

The data were collected using semi-structured questionnaires and interview schedule. The questionnaires had both closed and open-ended questions. The data collected were within the following domain; perceived competence, job satisfaction

and role clarity. The questionnaires were pretested in the Zogu community to ten agricultural extension agents so as to determine their knowledge in the subject being investigated. Consequently, all the necessary changes in the construction and sequence of the data collection instruments were made.

3.6.2 Key informant interviews

They were considered as key informants since they had detailed information regarding concepts, which included competence, role clarity and job satisfaction being investigated.

3.7 Data Processing and Analysis

Data from the field after the application of the required data collection instruments were edited to correct some mistakes in the responses obtained from the field. Subsequently, the data were categorized and tabulated to respond to the study objectives. Quantitative data gathered was coded in order to make it possible for the usage of the SPSS in the construction of the required charts for data analysis. Analytical techniques are detailed in Table 3.2.

Table 3.2: Objectives and analytical techniques

Objective	Analytical technique
1. To examine the relationship between perceived competence and extension performance.	Descriptive statistics
2. To examine the relationship between role clarity and extension performance.	Descriptive statistics

3. To examine the relationship between job satisfaction and extension performance.	Descriptive statistics
To identify challenges that hinder the effective performance of extension agents.	Descriptive statistics, thematic analysis

Findings of the study were reported using a combination of varied approaches and techniques. The use of tables, figures and charts were employed to support the analysis of the data. The major findings were also summarized in line with the objectives of the study.

3.8 Ethical Consideration

This aspect of the study identified various sources of ethical concerns that posed serious challenge to the study. The most important areas of ethical dilemma that the researcher considers include the privacy rights, the impact of psychological harm, deception and confidentiality. Each of the ethical issues were dealt and taken care as shown in the following narrations below

3.8.1 Privacy rights

One of the most fundamental ethical issues involves is the respondent's right to privacy. Given the very nature of people's perception of agricultural extension agents, invasion of privacy of the research subjects at one level or another are a matter of natural course. As a result of this, the researcher conformed to the contemporary guidelines for research with human subjects. An important aspect of

the respondents privacy right is the informed consent which primarily involves furnishing the respondents with enough information concerning the research problem, so that respondents may choose to participate or otherwise in the research process.

3.8.2 The potential for psychological harm

Due to the delicate issues associated with people's perception on the performance of agricultural extension agents in the region, the researcher was sensitive to any possibility of harming the respondents. The researcher guided by the principle that, respondents who agree to participate in the research does so willingly and can terminate his or her involvement at any time, the researcher really operated in a way devoid of causing any potential psychological harm to those who participated in the data collection exercise.

3.8.3 Deception

It can be argued with a justification that, the need for deception in research may be legitimate since revealing the rationale of the research would either results in some biases or prevent scientific investigation. Most social researchers would agree to the fact that, the use of deception in social research is harmless and the understanding of social dynamics from researches using deception does not amount to causing any undesirable sentiments. This may be so, but considering the social setting in which this research is conducted coupled with the nature of the issue being investigated, the researcher did everything possible to ensure that,

respondents were not deceived, and anything they needed to be abreast with the rationale of the research was disclosed and clearly explained out for all respondents.

3.8.4 Confidentiality

The process of gathering information about individuals or groups raises the issue of confidentiality. The researcher assured the respondents the confidentiality of the information obtained. As required by the researcher, names, addresses and other vital particulars of the research respondents were not associated with particular answers without the explicit permission of the respondents. In addition, the researcher did everything possible to ensure that data collected were handled in a manner that makes it impossible to connect any answer or behaviour with a specific individual. There are certain situations that may compel researchers to reveal some classified information about their studies, the researcher ensured that information obtained from the field was treated with the utmost confidentially that it deserved.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents data and analysis of the study. It basically focuses on socio-characteristics of extension agents in terms of age, sex, level of education, number of years in extension, role clarity, job satisfaction and perceived competence. It also takes a look at the inter-relationship among the variables identified above. The chapter again looks at the reasons for low/high perceived competence of extension agents in the Northern Region and finally recommendations are made to address some of the challenges of agricultural extension workers.

4.2 Socio-Demographic Characteristics of Respondents

In this section, data pertaining to the socio-demographic features such as age, sex, level of education, number of years in extension, role clarity, and job satisfaction are presented.

4.2.1: Age Distribution of respondents

Figure 4.1 presents data on the age distribution of respondents who participated in the study. This is aimed at determining the dynamics that define the social status of the respondents during data collection. Out of the 105 respondents for this data, 58% were aged between the age group of 21–30 years. Those found to be in the bracket of 31-40 years were 37%. The age group of the respondent falling within

31–40 years was 50% of the entire sample. The ages of all the respondents were below 50 years.

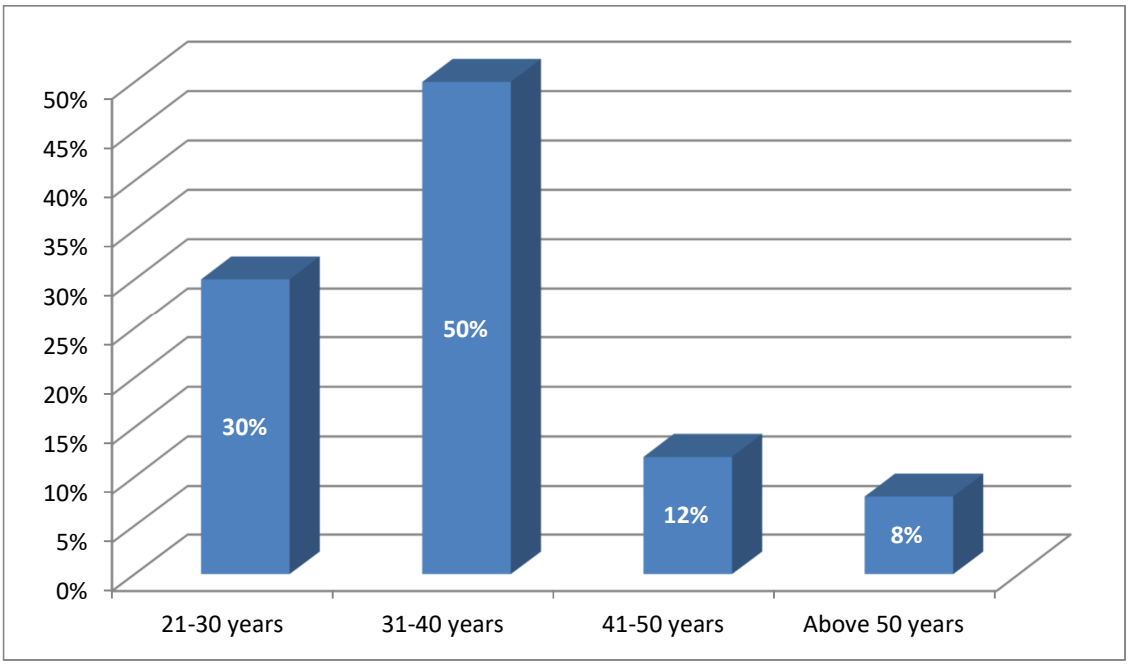


Figure 4.1: Age Distribution of Respondents

Source: Field Work, 2015.

The above data therefore depicts that the respondents for this study had youthful features. This also implies that the youthful nature of the agricultural extension workers if properly utilized will contribute effectively in supervision of the various farmers identified in extension modules. It can therefore be inferred that job performance associated with the agricultural extension officers takes a downward trend as the agricultural extension workers advance in age. This seems to have a direct connection with diminishing capability and proficiency among the extension officers as they go about their daily duties. They are therefore tempted to stay longer as extension officers since at this age there will be fewer choice and

substitutes for job opportunities existing out there for the aging or the aged in other fields of work.

4.2.2: Gender Distribution

This section discusses the gender distribution of respondents.

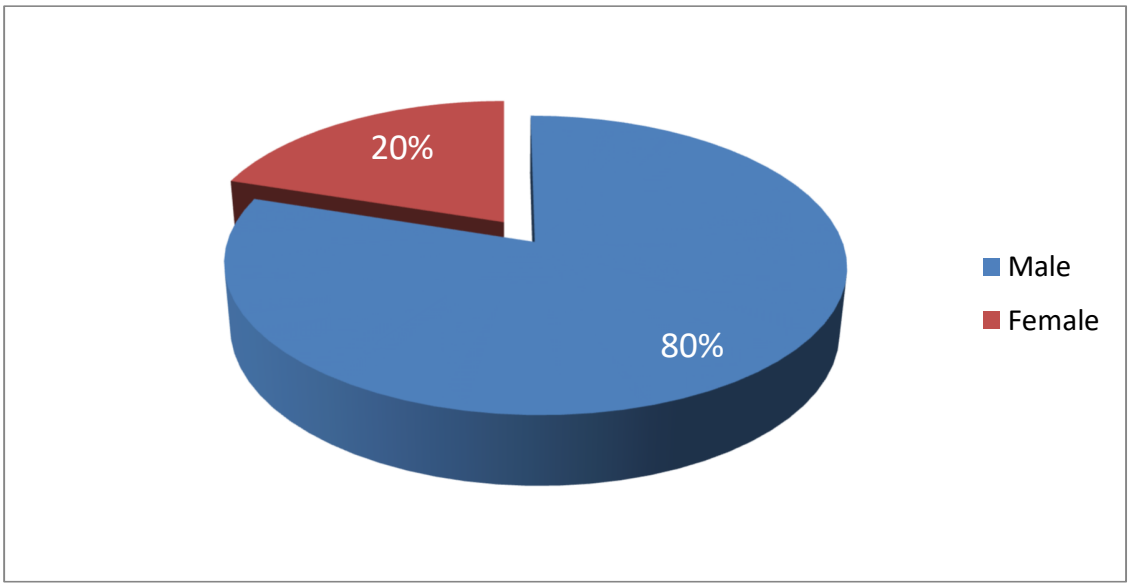


Figure 4.2: Gender Distribution

Source: Field Work, 2015.

Responses shown in Figure 4.2 indicate that, the majority of the respondents were males (80%) while the remaining respondents (20%) were females. The results therefore show that men are at the center stage of agricultural extension in the region. However, women are also expected to play an instrumental role in this regard. A number of issues came up concerning lack of women agricultural extension officers which has indeed affected the delivery of extension services

since challenges peculiar to female farmers might not be immediately identified thereby perpetuating the gender imbalance. Beintema and Marcantonio (2009) revealed that complex issues arise when talking about different approaches to extension as different authors use different words in explaining the concept representing approaches, systems or models.

4.2.3: Marital Status

With regards to the marital status of respondents (extension officer), the data above reveals that, 32 (30%) were single, 26 (25%) were married, while those divorced were 21 (20%). It was realized that, 16 (15%) respondents described their marital status as being separated. Meanwhile, 11 (10%) were co-habiting.

As the study revealed that, majority of the respondents were married, it is plausible to argue that, because of this, the pressure of providing basic needs for family and self, the desire to maintain social status and so on that compels the individual breadwinners creates serious challenges for the said families.

At this stage, Hallman et al. (2007) assertions are seen to be correlated to this particular findings in view of the fact that, different guiding principles are applied in a specific situation to fulfill different purposes and/or target specific development beneficiaries, whereas Jones and Garforth (2009) see this approach as consisting of a series of procedures for planning, organizing and managing the extension institution as well as for implementing practical extension work by staff with technical and methodical qualification and using the necessary and appropriately adapted means.

Table 4.1: Marital Status of Respondents

Marital Status	Frequency	Percentage
Single	32	30
Married	26	25
Divorced	21	20
Separated	16	15
Co-habiting	10	10
Total	**105**	**100**

Source**:** Field Work, 2015.

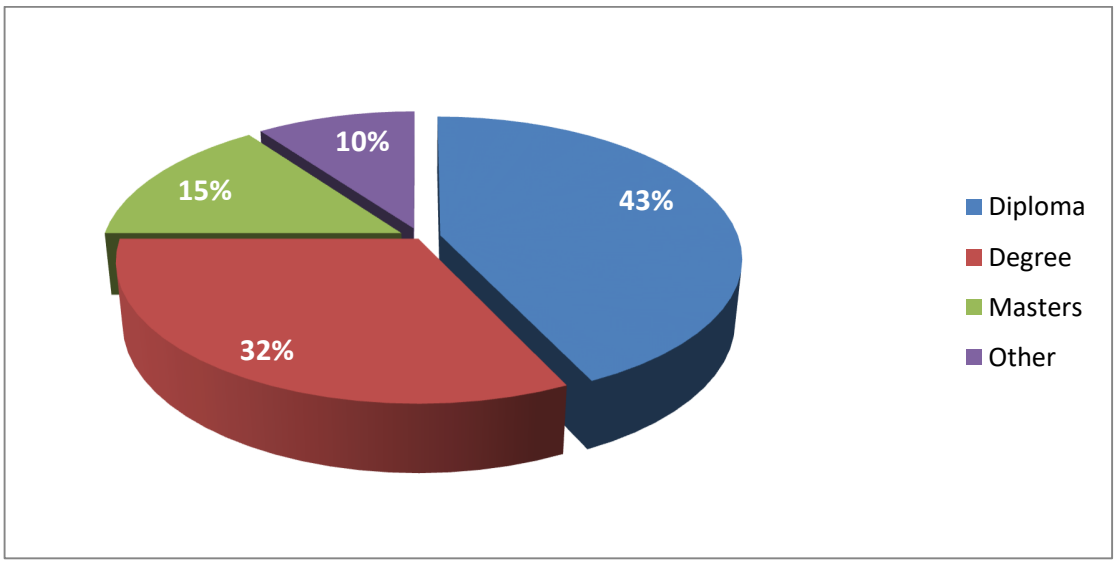


Figure 4.3: Educational Background

Source: Field Work, 2015.

4.2.4: Educational Background

As the study revealed, most of the extension officials (43%) had Diploma as their highest qualification. Those with qualifications in degree represented 32% of the respondents, whiles 15% extension officers had Masters in agricultural related courses. Extension officers with agricultural vocation related course was the least since they were represented by 10%.

One can argue that, though there is appreciable level of educational background of the extension officers, this has not impacted positively on crop production in the areas of concern since there are food insecurity issues in the study area. Furthermore, the study revealed that the educational qualification of the extension officers have had lesser influence on their own performance in their respective fields of operations in the different communities.

4.3: Job Satisfaction of the Extension Officers

The role of agricultural extension officers in enhancing farmers' knowledge on farming practices and improving productivity is very significant. The satisfaction of extension agents plays a great role in the performance of extension agents. Job satisfaction of the extension officers is dependent on a number of reasons as the discussion in the ensuing section of the chapter unveils.

4.3.1: Dissatisfaction of Agriculture Extension Officer

This sought to solicit respondents' opinions on whether the agriculture extension officers experience some form of dissatisfaction in their profession.

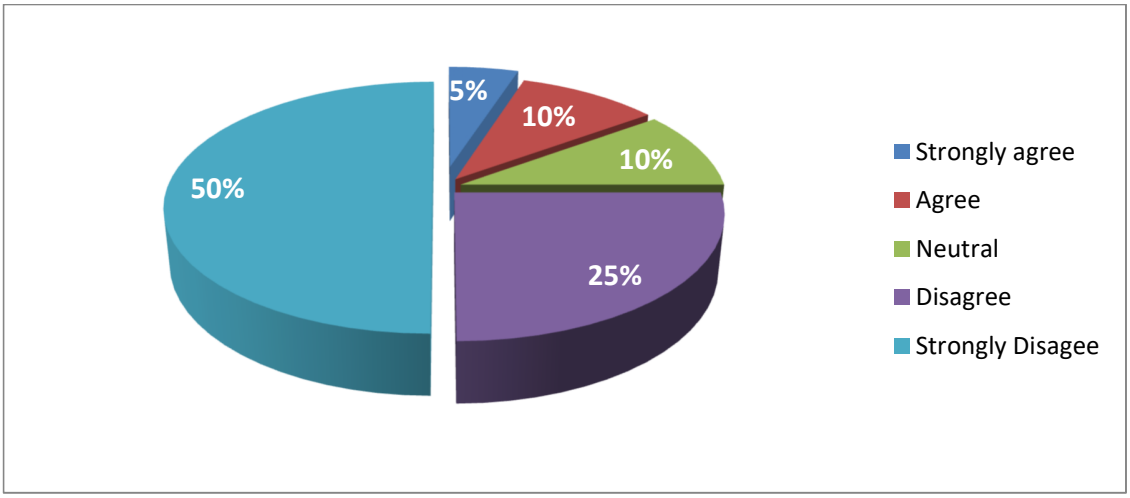


Figure 4.4: Dissatisfaction of Agriculture Extension Officer

Source: Field Work, 2015.

In response to a question on whether they were disappointed as agricultural extension officers in their respective communities, quite an insignificant part of the respondents representing 15% of the respondents answered in the affirmative (strongly agree, agree) indicating their disappointment as agricultural extension officers. Contrary to the above assertion, 75% of the respondents provided a negative response (disagree, strongly disagree) to the issue pertaining to whether they are disappointed as agricultural extension officers. In addition, 10% of the respondents provided no response.

As a justification that rejects the findings that, there is disappointment of agriculture extension officers, Beintema and Marcantonio, (2009) suggests that, farmers' effectiveness in terms of improvement in their yields is the function of extension services thereby making the role of the extension officers very invaluable for the growth and development of agriculture in general.

The dissatisfaction of the extension officers which were not immediately dealt with until later days on the extension offices' subsequent visits to their respective operational areas was an issue relating to the perception of the research respondents. These worrying concerns require a particular strategic approach to solve them. The assumptions are influenced by the views of the nature of the human, technical, biological, physical, social, cultural, administrative, political, and the ecosystem in which extension will function. These according to the extension officers indeed affected their morale on each of their visits to the designated farmers in the communities.

4.3.2: Adequacy of Salary/Remuneration Received

In responding to the adequacy of pay for the job they do regularly as agricultural extension officers, the majority of the agricultural extension agents numbering 79 (75%) expressed great disappointments for their roles in their respective communities as they provided negative response that indicates their total disagreement on the remuneration of agricultural extension officers. However, 21 (20%) of the extension agents agreed that their remuneration was satisfactory. Those who could not provide any meaningful contribution to the issue were 16 (15%) respondents.

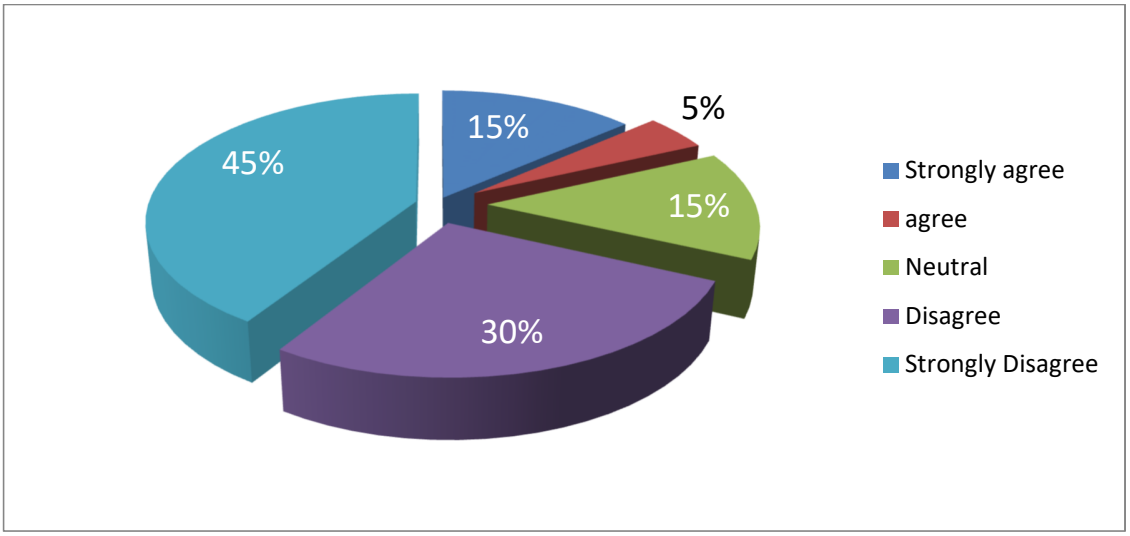


Figure 4.5: Adequacy of Salary/Remuneration Received

Source: Field Work, 2015.

Irrespective of the low salaries they receive, some of the extension officers, especially the elderly ones find their jobs to be satisfactory. This particular finding contravenes Chale's (2009) proposition, which states that, the performance of the extension agents has a reverse correlation with competence as they advance in their profession. Chale consequently concludes that, the aging work force is likely to register a dwindled competence. The situation has probably being aggravated by the fact that mandatory retirement is proscribed.

4.3.3: Feelings of the Extension Officers

In this section, the different approaches of agricultural extension officers and beneficiary farmers are the central focus.

The feeling of extension officers was determined against happiness, delightfulness, cheerfulness and exuberance. Respondents' feelings were measured on a five level Likert scale, ranging from strongly agreed (SA) to strongly disagreed (SD). As

seen in Table 4.2, 27.7% of the respondents strongly agreed that the extension workers did their work with happiness. Similarly, 23(21.9%) of the extension officers expressed their happiness as they come into contact with the beneficiary farmers in the field, but 20(19.0%) as explicitly disagreed. Meanwhile 26(24.8%) strongly agreed that, the extension workers work with delightfulness while 54(51.4%, i.e. 18.1% and 33.3% respectively) of the respondents rejected the idea of delightfulness about the current status of their work. Regarding feeling of Cheerfulness, 48(45.7%) of the extension workers responded in the affirmative, as 20(19%) strongly agreed and 28(26.7%) just agreed. While 3(2.9%) respondents were undecided and the remaining 52(51.4%) disagreed either strongly or just disagreed.

Furthermore, 13(12.4%) were associated high exuberant feeling as they strongly agreed. Conversely 39(37.1%) strongly disagreed to the earlier assertion. This finding disagrees with that of Rizzo et al. (1970) argument that introduces the possibility of a dysfunctional individual and organizational consequences stemming from the existence of role conflict and role ambiguity in complex organization.

The farmers on their part expressed their willingness and desires for the improvement of their capabilities so as to enable them appropriately apply the techniques and knowledge learnt from the extension officers. This will not only contribute to the achievement of the primary objective of the agricultural extension services but also help develop and enhance capacities of the players in the agricultural value chain at the various communities of beneficiaries.

Table 4.2: The Feelings of Agricultural Extension Officers

Responses	SA F(%)	A F(%)	U F(%)	D F(%)	SD F(%)	TOATAL
Happiness	29(27.7)	23(21.9)	07(6.7)	20(19.0)	26(24.7)	105(100)
Delightfulness	26(24.8)	21(20.0)	06(5.7)	25(23.8)	27(25.7)	105(100)
Cheerfulness	20(19.0)	28(26.7)	03(2.9)	19(18.1)	35(33.3)	105(100)
Exuberance	13(12.4)	20(19.0)	03(2.9)	30(28.6)	39(37.1)	105(100)

Source: Field Work, 2015.

4.3.4: Reluctance to Work

The levels of reluctance of extension officers were also determined by the study. Reluctance in this study refers to the unwillingness and lack of enthusiasm on the extension officers. In this section, the study focuses on whether the above tendencies are exhibited by extension officers in the field.

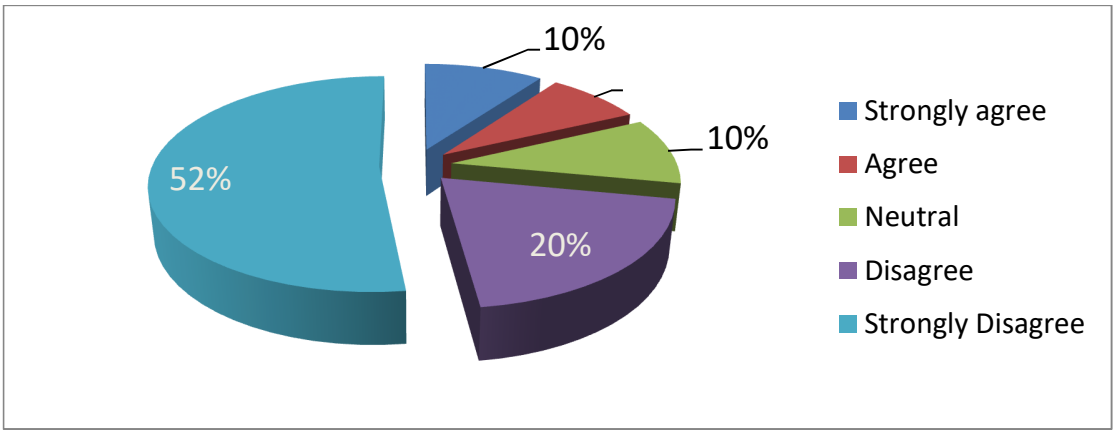


Figure 4.6: Reluctance to Work

Source: Field Work, 2015.

In terms of whether extension workers feel reluctant to go to work, few of the respondents (18%) confirmed this particular assertion. On the other hand, it was

revealed that, 72% of the respondents rejected the assertion that most agricultural extension workers feel reluctant to go to work. The category of respondents who provided no response constitutes the least number of respondents since 10% of the respondents were found to be in this category.

The reasons provided to support the responses indicated above include the following: most community members regard the services of agricultural extension as very important in forecasting for the future food security. They also believe that, the effective implementation of extension service programmes will create an enabling environment for sufficient food production.

4.3.5: Officers' Inability to Engage in Adequate Communication

This section focuses on whether there is any form of inability on the part of the extension officers to engage in adequate communications with the farmers on the ground.

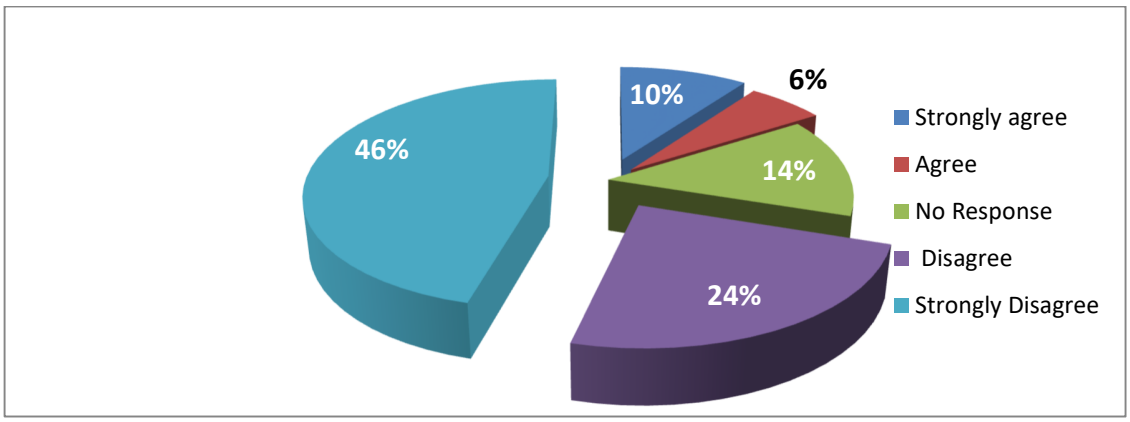


Figure 4.7: Officers' Inability to Engage in Adequate Communication

Source: Field Work, 2015

As the Figure 4.8 shows 70% of the respondents disagreed with the assertion that, they do not engage in adequate communication with their respective head offices. However, 16% of the respondents rejected the idea put forward by the majority of the respondents. It is revealing to note that, some of the extension workers could raise the idea of lack of contact with their respective head offices in the various communities in the region. This could be as a result of inadequate resources in the form of equipment and means of transportations in the respective field of operations of the extension officers.

It is further observed that, 6% of the respondents could not provide any meaningful contribution to the issues being discussed. Reasons attributed to this could be differences in geographical locations and different economic conditions. The category of respondents who thought they were unable to engage in adequate communication was found to be frustrated by their work.

In confirming the officers' inability to engage in adequate communication, Agarwal (2001) agrees with the complex issues, which arise when communicating the different approaches to the various farmers in the communities by the various extension workers. Akeredolu (2008) supported Agarwal's assertion by referring to the difficulties and inabilities of extension staff as difficult approach making the basic planning philosophy that is being adopted by an agricultural extension as posing serious challenges.

The farmers felt that, there was inadequate communications between them and the extension officers. This according to the farmers has undoubtedly affected the

frequency of in-service training for them and regular visit to farmers' farms. This in the views of the farmers has affected the needed improvements required in the extension management. The inefficiency in the free flow of information has posed a number of challenges and difficulties for agricultural extension service delivery. Most extension officers admitted to the fact that, they had never met any Subject Matter Specialists (SMS) who usually give training to frontline extension agents and farmers on newly introduced approaches. This has deprived extension officers the benefits associated with coming into contact with the SMS who are mostly superior to the extension officers which include the clarification of simple technical issues, directing and arranging schedules for the extension agents who then proceed to train farmers on the new technologies.

4.3.6: Adequate Administrative Support from Head Office

Extension agents were asked to score with respect to adequacy of administrative support from the directorate. Their responses have been presented in the pie chart in Figure 4.8.

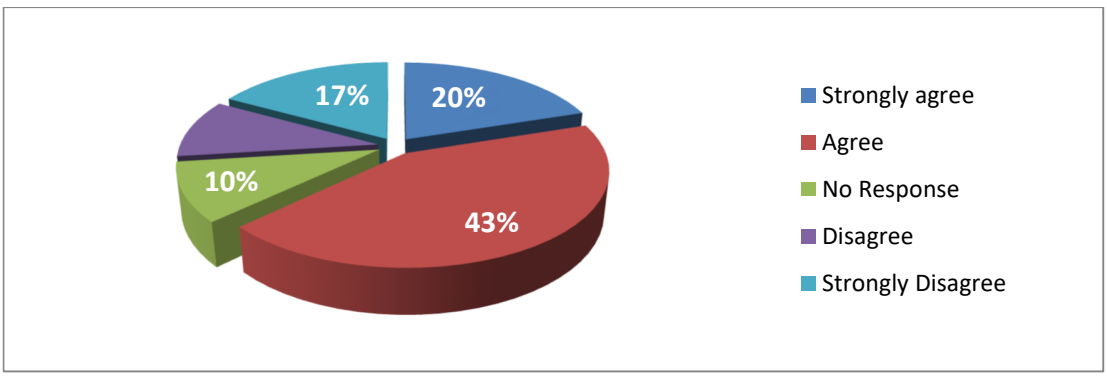


Figure 4.8: Adequate Administrative Support from Directorate

Source: Field Work, 2015

As seen in Figure 4.8, 63% of the respondents maintained a positive stance to this issue, which testifies their total agreement to the above assertion. Nonetheless, some of the respondents representing 27% held an opposing opinion to the above assertion. Invariably, 10% of the respondents indicated their lack of views to contribute to the discourse on whether agricultural extension officers. The response revealed the extension officers receive adequate administrative support from their various directorates.

There is an explicit correlation with Hallman et al (2007) proposition, who indicates that, different guidance and standards are formulated at the head offices and applied in a specific situation to fulfill different purposes aimed at benefiting the target groups in the communities

4.4: Role Clarity involving Agricultural Extension Services

Like other workers, the agricultural extension service providers have specific roles they are expected to clarify for their respective beneficiaries in the identified communities. Usually, such role clarifications are set before the period of the implementation of the programmes. The ensuing discussions in this section contribute to the achievement of this particular objective.

4.4.1: Clearly Defined Role in the Objectives of Extension Services Work

The ensuing sections set parameters for the definition of role towards the achievement of the objectives of extension services work in their respective directorates. The responses of extension agents were measured on a likert scale ranging from strongly agree (1) to strongly disagree (5).

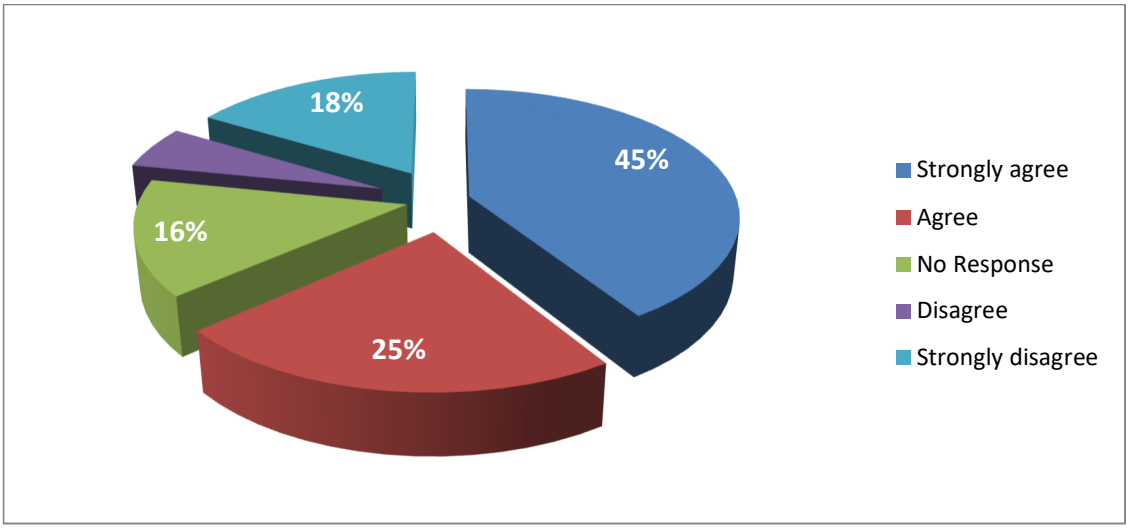


Figure 4.9: Clearly Defined Role in the Objectives of Extension Services Work

Source: Field Work, 2015

With regards to whether agricultural extension officers have clearly defined role in the objectives of extension services work, Figure 4.11 shows that, 70% of the respondents confirmed that, there is clearly defined role in the objectives of extension services work. However, 24% of the respondents rejected the idea that, extension officers' work is clearly defined while 6% of the respondents provided no response to the issues being discussed.

The assertions that reject the idea of understanding clearly defined role in the objectives of extension services work relates to Kahn et al. (1964) revelation which indicates that, the mode of operation of the activities of the extension officers are characterized by certain level of ambiguity, lack of role clarity, which creates a kind of discrepancy between the information available to the extension officers and that which is needed to adequately perform the role in the various communities in the

region. Despite the fact that, some of the respondents rejected the assertion on the clearly defined role of the extension officers, there is no doubt that the operation of the extension workers are guided by prescribed role to be performed in their respective field of operations. This enables the extension agents to have adequate knowledge on their responsibilities.

These particular results are analogous to Fiagbey's (2009) description of role in agriculture, which he referred to as the agricultural extension based on the top-down commodity-based approaches more of participatory in nature. Those approaches the farmers are conversant with according to Jones & Garforth (2009) are those organized by World Bank's Training and Visit (T&V), commodity, and participatory approaches and most recently farmer field schools (FFSs) in addition to innovative ICT based approaches which provides advice to farmers on-line and other approaches such as the promotion of mobile phones and community radio stations.

4.4.2: Judging Performance as an Extension Agent

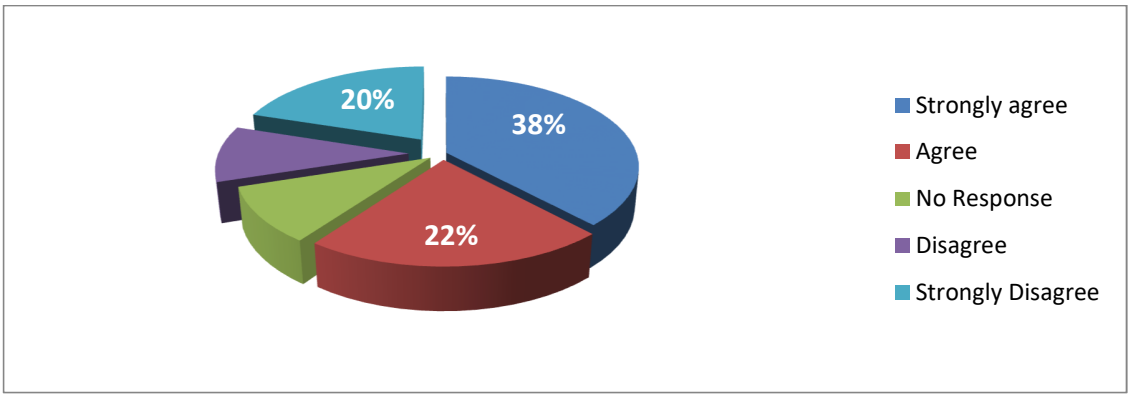


Figure 4.10: Judging Performance as an Extension Agent

Source: Field Work, 2015.

The majority (60%) of the extension agents, as figure 4.10 above, agreed that they know how their performance is judged while 20% of the respondents held an opposing view on the performance as an extension agent.

A strong relationship is therefore established between FAO (2011) model which considers performance as the function of extension agents and agricultural extension as a system since these assist farmers and its related jobs amongst families in the communities through educational activities aimed at improving farming techniques, increasing production efficiency and income, and bettering the living, social, and educational standards of rural people.

4.5: Perceived Competence of the Extension Officers

There are several perceptions concerning the competence of the extension officers among beneficiaries of the services of the field officers. The data analysis below represents some of the responses from the respondents.

4.5.1: Understanding the Philosophy of Extension Work

This data focuses on the set of beliefs that make the extension officers behave the way they do in terms of their operations.

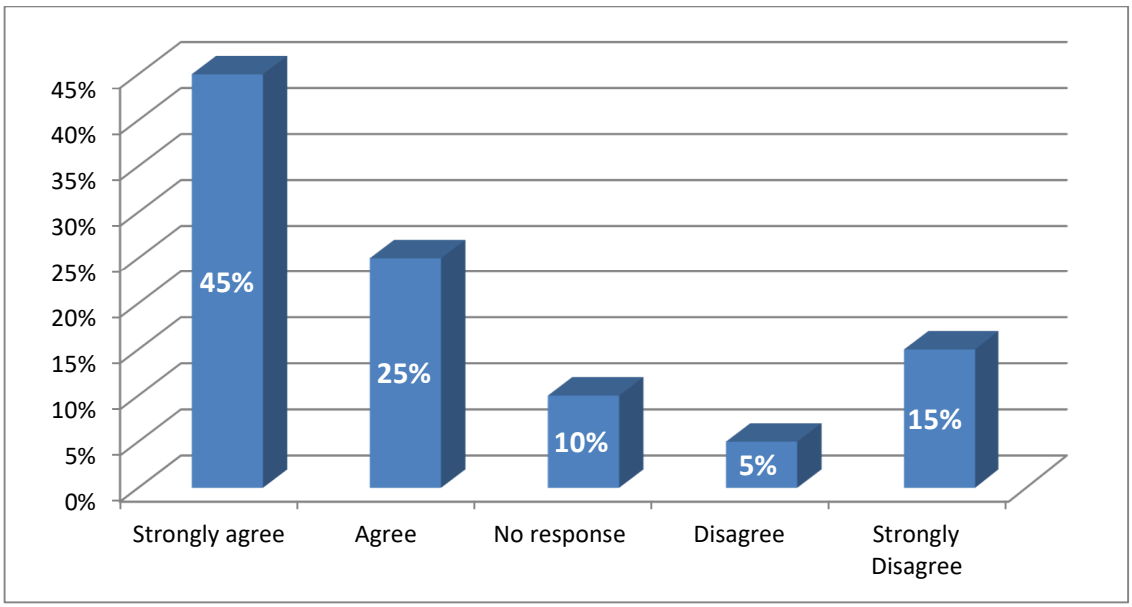


Figure 4.11: Understanding the Philosophy of Extension Work

Source: field Work, 2015.

As observed in Figure 4.11, it is obvious that, most of the respondents (70%) understood the philosophy that governs extension work in the region. Despite the fact that the majority (70%) of the respondents agree totally to their understanding of the philosophy of extension work, a proportion of the respondents (20%) thought that some of they work without understanding the principles of extension services delivery in the communities.

Inferring from the findings in Figure 4.11, the researcher is inclined to presume that, the ability of the extension officers to internalize the philosophy could influence their respective performance in the fields. Cohen and Levinthal (2010) notion corroborate with the opinion because the fundamental notions of agricultural extension is to promote a better understanding of agricultural extension approaches and to suggest the utility of comparison, in particular for the Directorate of the

Extension Services Department of the Ministry of Food and Agriculture.

This has assisted policy makers to be concerned with changing demands of the systems to better understand where changes are needed and where resources might best be allocated. This review of extension systems is useful for effective and efficient extension delivery and will also provide an intellectual insight and the basis for practical action.

4.5.2: Understanding the Objectives of Extension Work

Understanding the objectives of the extension programmes contribute to the effective delivery by the agent. This sub-section presents the views of respondents with respect to the understanding of the objectives of extension work.

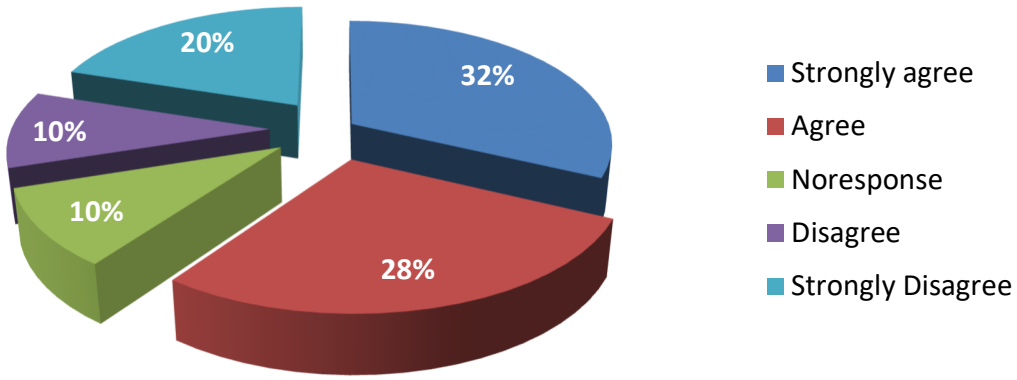


Figure 4. 12: Understanding the Objectives of Extension Work

Source: Field Work, 2015.

As presented in Figure 4.12, 50% of the extension officers understanding on the objectives of extension work to the above issue while 30% said they do not understand the objectives of extension work. Not every member of the respondents selected for the study saw the need to provide response to the issue being discussed as 10% of the respondents decided not to respond to the question on the understanding of the objectives of extension work.

The results also relates to Cohen and Levinthal's, (2010) thought who identified agricultural extension as an activity with the objective of creating an environment for agricultural extension workers to interact and teach farmers ways of improving on their farming practices, new techniques and more productive or more efficient technologies or packages of modern technologies.

Similarly, the results in Figure 4.12 correlated with Duffour (2009) suggestion that reveals that, farmers do recognize and appreciate the services of extension in the field for their production through to marketing of their produce. This has benefitted large numbers of these agricultural extension beneficiaries who are organized into an agricultural extension system, which provides them with a constant supply of useful extension messages, technical and administrative supervision, and logistical support. By this appreciation by farmers and other farm labourers, the objectives of extension work is understood and achieved in the long run.

4.5.3: Having Adequate Competence in Extension Programme Planning

In order to have adequate competence in extension programme planning, certain critical interventions ought to be implemented, and in the ensuing sections, attempts are made to achieve adequate competence in extension programme planning.

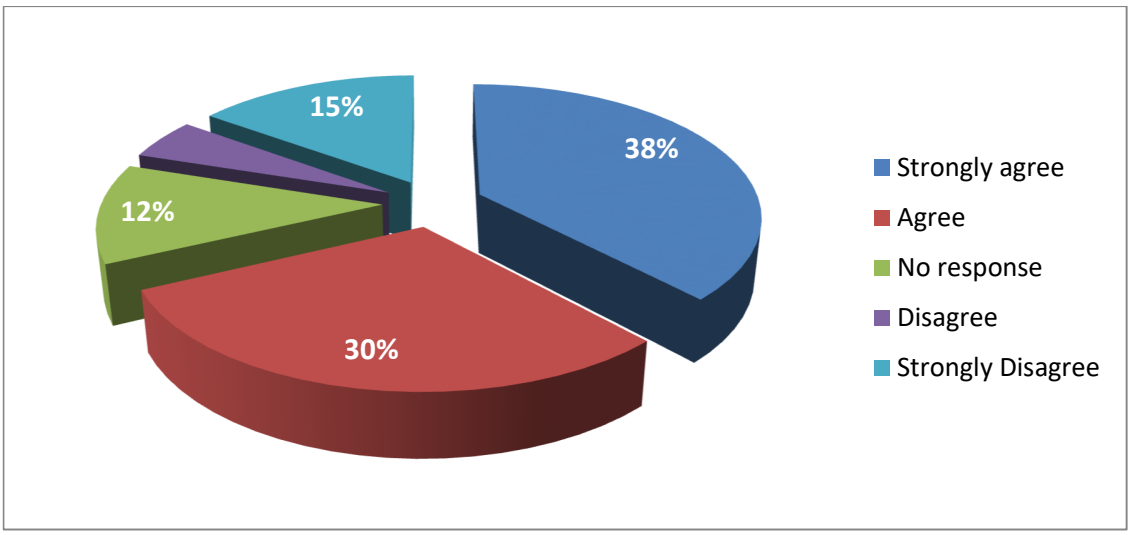


Figure 4.13: Having Adequate Competence in Extension Programme Planning

Source: Field Work, 2015.

As it can be seen from Figure 4.13, there was an agreement (68%) to the assertion that extension officers have adequate competence in extension programme planning. Quite a sizeable part of the respondents (20%) of the sample size rejected the idea of having adequate competence in extension programme planning. Despite the fact that there were mixed reactions to this particular question, it was obvious that, 12% of the respondents had no response to offer on the issue.

These findings do not agree with what Cohen and Lemma (2011) put across. In their view, it was apparent that, just as in the case of age and performance,

productivity also declines as people advance in age. Cohen and Lemma proposed explanation of competence in terms of skills acquisition with speed, agility, strength and coordination seems to decay over time. By this analysis, this cannot constitute competence of employees.

4.5.4: Having Adequate Competence in Extension Communication

The contributions of communications are very significant and have been given prominence in this study.

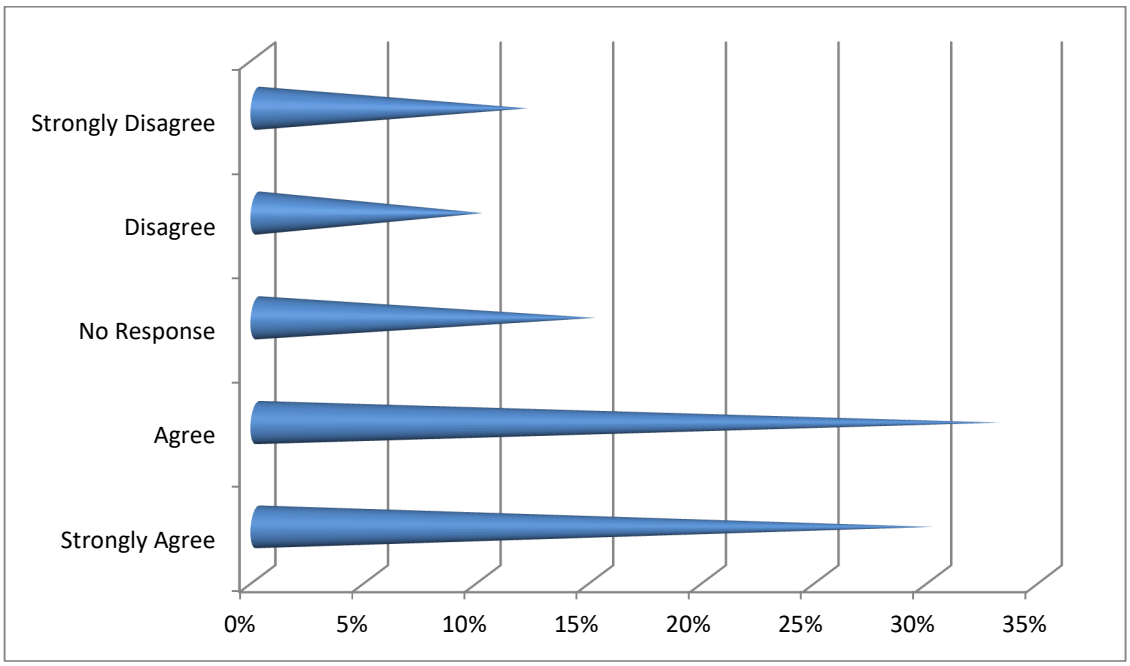


Figure 4.14: Having Adequate Competence in Extension Communication

Source: Field Work, 2015

On whether extension officers have adequate competence in extension communication, 68% of the respondents agreed to the assertion concerning the

ample competence of the extension agents in communicating their methods of operation. By this assertion, they generally agreed to a technique mostly utilized by the extension officers at all time in the field. It was further disclosed by 17% of the respondents as they disagreed having adequate competence in extension communication as a technique of disseminating information for the consumption of the beneficiary farmers in the field. Further adding to the above is the issue of 15% of the respondents expressing their uncertainty to the adequate competence in extension communication. According to those in agreement to the issue of having adequate competence in extension communication, this skill has properly positioned them to conduct effective evaluation of their activities over the years.

Adequate competence in extension communication undoubtedly relates to extension contact which according to Matata et al. (2008) encapsulates information such as farmer's visits to extension worker for advice, frequency of visit by extension worker to farms to provide advice, attendance to extension meetings, or a course in extension planning area. This has enabled the extension officers to effectively utilize scarce resource to benefit more people in the extension delivery.

4.5.5: Methods of Disseminating Field Extension Information

The section discusses the methods of disseminating field extension information for the mutual benefit of both the extension officers and farmers in different communities.

As it can be seen in Table 4.4, it was revealed that, 16 (15%) of the respondents strongly agreed that demonstrations are used as one of the methods of disseminating agricultural field extension information for the efficient utilization of the

beneficiary farmers while 42 respondents (40%) agreed that they use demonstration technique. This implies that the majority of the respondents largely use demonstration technique for extension delivery, a situation, which is quite commendable because demonstration methodology has been earmarked as the best way of introducing technology to farmers, particularly those who are illiterate. Conversely 20% and 25% of the respondents disagreed and strongly disagreed to the use of demonstration for extension education respectively.

Furthermore, 29(27.6%) and 25(23.8%) of the respondents agreed and strongly agreed, respectively, that using field trips is one of the potent extension teaching methods to improve extension service delivery. Majority of the respondents, thus 24(32.4%), did not share the view of the earlier set of respondents following their strong disagreement, likewise 17 respondents representing 16.2% disagreed. Further from the table, 32(30.5%) and 17(16.2%) strongly agreed and agreed respectively that dissemination of field extension information through organizing training is a good approach. Meanwhile 28(26.7%) just agreed to this method while 26(24.7%) disagreed, and merely 2(1.9%) were uncertain.

Extension officers' reaction to the methods of disseminating field extension information was basically a lamentation since the farmers revealed that, the information from the extension officers come in the form of instruction without sufficient explanation as to how the instructions are to be followed to ensure effective implementation.

In a focus group discussion, the farmers further revealed that, the passive role of farmers in the implementation of agricultural extension services therefore prevents participatory approaches, which could have adequately empowered the farmers to be able implement the approaches even in the absence of the extension officers. On occasions when farmers are made aware of the causes of their problems, they are able to take a greater active role in solving the problems.

What makes extension officers uncomfortable is the fact that, the lack of their participation prevents them from being part of the decision-making process in defining goals, planning, implementing, and evaluating development activities. This indeed does not strengthen extension officers in solving their own problem. Therefore, leaders of the farmers' groups call for best practices targeted at involving farmers at all stages of the implementation of agricultural extension methods at the various farming areas in their communities.

Table 4.3: Methods of Disseminating Field Extension Information

Responses	**SA F(%)**	**A F(%)**	**U F(%)**	**D F(%)**	**SD F(%)**	**TOTAL**
Demonstrations	16(15)	42(40)	0(0)	21(20)	26(25)	105(100)
Field Day	38(36.2)	22(21.0)	05(4.8)	22(20.9)	18(17.1)	105(100)
Field Trips	29(27.6)	25(23.8)	0(0)	17(16.2)	34(32.4)	105(100)
Organizing training	32(30.5)	28(26.7)	02(1.9)	26(24.7)	17(16.2)	105(100)

Source: Field Work, 2015.

4.6 Strategies of Making Agricultural Extension Work Better

Agricultural extension is likely work better if conditions are improved. This section elicited responses from extension agents on how in their opinion can extension conditions be made better for them. Five (5) statements were designed for extension agents to measure their response on a Likert scale ranging from strongly agreed to strongly disagree.

As it can be seen in Table 4.5, it was revealed that, 24(22.9%) and 42(40%) of the respondents strongly agreed and agreed respectively that, organizing training to educate the beneficiary farmers could become one of the strategies of making agricultural extension services better. This implies that the majority of the respondents agreed to the statement' organizing training to educate the beneficiary farmers', a situation which is quite important for policy to pay attention to, since most of the respondents were of the view that it can help to improve their work. However, 22 (20.9%) and 14 (13.3%) disagreed and strongly disagreed respectively on the statement.

Arguments on the part of farmers to this effect also added that, strategies adopted by the extension officers is time consuming, but these do not have any negative impact on the positive contributions of the extension officers to the growth of agriculture in the farming communities.

On the issue of subsidizing the cost of agricultural inputs meant for extension services 32(30.5%) and 40(38.1%) of the respondents strongly agreed and agreed respectively to the option that subsidizing the cost of agricultural inputs meant for extension services could go a long way to improve on the practice of agricultural

extension work in the region. Regrettably, 18 (17.1%) of the respondents strongly disagreed and 10(9.5%) disagreed, whiles 05(6.3%) were uncertain and therefore could not provide any meaningful response.

Furthermore, 24(22.9%) and 40(38.1%) of the respondents strongly agreed and agreed respectively to the statement 'inclusion of the farmers in designing extension programmes' as another strategy capable of improving on the effectiveness of agricultural extension services in the region. Conversely, 14(13.3%) and 23(21.9%) disagreed, and strongly disagreed to the statement while 5(4.8%) provided no response. The implication is that most of them subscribe to the view that they should include farmers in designing extension programmes. The inclusion of the farmers is very essential since they are at the receiving end of the programmes implemented by the extension officers. Farmers' inclusion helps in furnishing them with useful information, which prepares them ahead of the visit of the extension officers. By so doing, the farmers' mindsets are disabused on some issues referred to as superstition in their farming activities.

Moreover, 22(21.0%) and 43(41.0%) strongly agreed and agreed respectively to statement that posting more extension agents to cover more communities accordingly can be a good strategy towards the improvement of the effectiveness of extension by way of widening the scope of extension works in the region. However an appreciable number of the respondents were not in support of the above statement since 14(13.3%) of the respondents strongly disagreed and 23(21.8%) just disagreed. The remaining 3(2.9%) respondents were skeptical and were unable to provide any meaningful response.

The implication is that, the posting of more extension officers brings to bare the dissemination of useful information in assisting farmers to change their negative attitude in more communities towards doing things the same way and expect to get different answers.

Table 4.4 Strategies of Making Agricultural Extension Work Better

Responses	SA F(%)	A F(%)	U F(%)	D F(%)	SD F(%)	TOTAL
Organizing training to educate the beneficiary farmers	24(22.9)	42(40)	03(2.9)	22(20.9)	14(13.3)	105(100)
Subsidizing the cost of inputs for extension services	32(30.5)	40(38.1)	05(4.8)	10(9.5)	18(17.1)	105(100)
Inclusion of the farmers in designing extension programmes	24(22.9)	40(38.1)	04(3.8)	14(13.3)	23(21.9)	105(100)
Posting more extension agents to cover more communities	22(21.0)	43(41.0)	03(2.9)	14(13.3)	23(21.8)	105(100)

Source: Field Work, 2015.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter essentially summarizes the findings of the study. Conclusion for this study is also drawn based on the findings, thereby leading to the proposition of recommendations aimed at improving on the effectiveness of agricultural extension services in the region.

5.1 Summary of the Findings

The results in this section are categorized into the following thematic areas such as socio-characteristics of respondents and the other variables that are discussed in chapter four.

5.1.1 The Socio-Characteristics of Extension Agents

The study found that, majority of the respondents were in the age group of 31–40 signifying a youthful agricultural extension workforce who could contribute considerably in assisting the farmers in the region to accept the modern practices of farming.

The study again revealed that, the majority (80%) of the respondents were males demonstrating the fact that despite the higher population of women in the country, men are dominant in issues regarding agricultural extension services in the region.

With reference to the marital status of the respondents, the majority of the respondents were found to be married even though there were others who were divorced/separated as well as co-habiting. It was observed that, despite the fact

that, most of the beneficiary farmers were Basic Education Certificate Examination (BECE) holders and other without certificates, few of the extension staff had tertiary education qualification making it very essential in the appreciation of the basic concepts related to agricultural extension.

5.1.2 Job Satisfaction and Role Clarity

The study observed that, most of the extension workers understand the philosophy that governs extension work in the region. Moreover, it was realized that, extension officers have adequate competence in extension programme planning resulting in their competence in agricultural extension communication.

Demonstrations, field day, field trips and the organizing training workshops were found to be the main methods of disseminating field extension information. It further revealed that, the introduction of new programmes and posting more extension agents has led to more communities being covered by the activities of agricultural extension officers.

The study found that organizing training to educate the beneficiary farmers, subsidizing the cost of agricultural inputs meant for extension services, inclusion of the farmers in designing extension will remarkably improve extension delivery. The majority (38%) of the extension officers agreed on inclusion of farmers in the design of extension progrommes.

5.1.3 Perceived competence of extension agents

The study also revealed that most of the respondents disagreed whether they were disappointed as agricultural extension workers. As the study further revealed, the

extension agents were dissatisfied with the pay they usually receive as remuneration. It was also again found that, majority of the respondents feel happy as extension agents in the region. The study revealed no feeling of reluctance on the part of the extension workers to go to work. The study disagreed to the assertion that, extension workers do not engage in adequate communication with their respective head offices.

The study supported the fact that, agricultural extension officers have adequate administrative support from their respective head offices. Agricultural extension officers were able to clearly define their role in the achievement of the objectives of extension services work.

The study further revealed no doubt about the agricultural field officers' knowledge of their responsibilities as extension agents as they were abreast with the modern technologies in the agricultural sector.

5.2 Conclusion of the Study

Agriculture has become the backbone of Ghana's economy in the entire post-independence history. The significance of Agriculture to the economy largely depends on the contributions of agricultural extension workers in various communities. Agricultural extension services have also assisted people to have access to the quality and sufficiency following the methods of production provided by the extension workers in the areas of harvesting, haulage, processing, storage, packaging and marketing. However, people's perception on the extension officers'

competence, role clarity and job satisfaction in their respective communities still persist in the identified communities for this study.

Issues regarding performance, job satisfaction and information seeking behaviour with job performance of the extension officers were found to be related. Issues of dissatisfaction were explicitly displayed. It was suggested in the study that as per the factors that account for the perceived competence role clarity and job satisfaction of extension agents in the Northern Region, it is important that, the challenges that affect the effectiveness of performance of extension agents ought to be tackled as early as practicable.

5.3 Recommendations of the Study

In order to strengthen the effectiveness of agricultural extension services in the region, the following recommendations are provided:

Efforts should be made to encourage females to accept employment in the extension services in order to ensure gender balance in keeping national and international protocols in fair utilization of extension services for all sexes in the region since the finding revealed low female participation in the service.

Since agricultural extension agents are dissatisfied with their remuneration, the condition of service of the extension workers should be considered and relooked at so as to boost their morale. Though the extension agents feel happy as extension agents in the region, government through the ministry of Food and Agriculture

should live up to its bidding in addressing the challenges of agricultural extension workers so as to encourage the regular visit to the beneficiary farmers in the field.

Furthermore, extension workers should be encouraged to engage effectively in disseminating adequate communication with their respective head offices in the region. Since agricultural extension officers have adequate administrative support from their head offices, this should be properly explored in order to always be among the first to be provided with the expected benefits.

The study finally recommends that, the competence of the extension officers should be fully utilized which may result in the improvement of the overall farming activities in the region. The officers are also expected to utilize the scarce resource to benefit the farmers in their respective farming communities.

Agricultural extension workers should be clear of their roles and duties from the onset so as to enable them perform effectively in order to improve on crop production. Based on the area of specialisation, each extension worker should be aware of the competencies expected of him/her.

Professional competencies should be developed through the organization of in-service training to regularly improve on the skills of the extension officers. All stakeholders in extension service delivery should give more emphasis on-the-job training and continuing educational programmes for extension personnel to help address the specific professional needs of extension workers. Finally, Extension workers should be given an opportunity to plan their own competencies requirements and decide how to achieve them.

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APPENDIX

Questionnaire for Extension Agents

As a final year student at the above University pursuing a Master's programme, it is expected that, a research is undertaken as a partial fulfillment of the course requirement. Following this a research entitled **'Perceived Competence, Role Clarity and Job Satisfaction of Agricultural Extension Officers in the**

Northern Region of Ghana' is currently being undertaken by the student. The researcher would like to assure respondents that the information given will be treated as confidential and will be used for the purpose of data collection.

Serial number……...

Date:……...

PART I

Section A: Personal Characteristics

1. Name of respondent……

2. Name of district of operation……

3. Sex 1. Male [ ] 2. Female [ ]

4. Age of respondent [ ] years

5. Marital status

i Married [ ]

ii Single [ ]

iii Widow/widower [ ]

iv Separated [ ]

v divorced [ ]

6. What is the total number of members of the household?

i Adults: Males [ ] Females [ ]

ii Children Boys [ ] Girls [ ]

7. What is your level of education?

i. Primary [ ]

ii. J. S. S/middle [ ]

iii.Secondary/vocational [ ]

iv. Tertiary [ ]

v. Others, specify [ ]

8. Who is the breadwinner of your household?

i. Husband alone [ ]

ii. Husband and spouse [ ]

iii. Other(s), please specify ……

9. How many dependants do you have? [ ] dependants

10. What form of accommodation do you (and your dependants) occupy?

i. Self-owned [ ]

ii. Rented [ ]

iii. Extended family's [ ]

PART II

With the following response categories answer sections B, C and D; Kindly indicate your response by writing the appropriate number against the response category in the boxes provided; Strongly agree (5) Agree (4) Somewhat agree (3) Disagree (2) Strongly disagree (1)

SECTION B: Job Satisfaction of Extension Workers

11. I am disappointed that I ever took this job

(i) agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree

(12) I am adequately paid for the job I do agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree.

(14) I find my job really enjoyable agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree

(15) I feel that I am happier in my work than most peoplein other fields of work.agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(16) Most of the time I feel reluctant to go to work agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(17) I don't engage in adequate communication with my head office agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(18) I feel frustrated by my work agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(19) I have adequate administrative support from my head office agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(20) I have adequate transportation/travel assistance agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

SECTION C: Role Clarity of Extension Workers

(21) I am clear about my role in the objectives of extension work. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(22) I was given a clearly defined job description as an Extension work. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(23) I know what my responsibilities are as an extension agent. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(24) It is clear to me what I am responsible for in this job (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(25) I know exactly what is expected of me, (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(26) I know how my performance is judged as an extension agent. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

SECTION D: Perceived Competence of the Agricultural Extension Officers

(27) Understand the philosophy of extension work. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(28) I understand the objectives of extension work. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(29) I understand the role of the extension agent. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(30) I have adequate competence in extension programme planning. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(31) I have adequate competence in extension communication. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(32) I have adequate competence in extension programme evaluation. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(33) I know how to utilize scarce resource to benefit more people. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(34) I know how to use audio-visual equipment. (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(35) I know how to use educational, other materials e.g. Bulletins, charts etc.(i)Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree [ ].

(36) I know how to conduct programmes (demonstrations, field day, field Trips, etc) (i) Agree [ ] (ii) strongly agree [ ] (iii) Neutral [ ] (iv) disagree [ ] (v) strongly disagree[ ]

SECTION D: Possible Ways of Making Agricultural Extension Services Better

(37) Are there possible ways of making agricultural extension services better in the region? (i) Yes [ ] (ii) No [ ] (iii) No response [ ].

(38) Kindly indicate some of the ways by which agricultural extension services could be bettered.

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