

**THE IMPACT OF AGRICULTURAL EXTENSION SERVICE DELIVERY ON  
FARMERS' PRODUCTIVITY IN DAMBAM LOCAL GOVERNMENT AREA  
BAUCHI STATE**

**BY**

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EDUCATION (EXTENSION EDUCATION)**

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## **DECLARATION**

I hereby declare that this work is the product of my own research effort, undertaken under the supervision of Dr. Garba Muhammed Tofa, and has not been presented anywhere for the award of a degree or certificate. All sources has been duly acknowledged.

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### **CERTIFICATION**

This is to certify that the research work for this dissertation and the subsequent write up by ca  
GamboYaron Baba SPS/15/MAD/00053 was carried out under my supervision.

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## **DEDICATION**

This research work is dedicated to my lovely father, Mal. Yaron Baba and Hauwa'u Muhammad whose support, assistance and guidance greatly facilitated the attainment of my present educational standard. May Allah (SWT) reward them all with Jannatul Firdausi, amin.

## APPROVAL

This dissertation has been examined and approved for the award of M.Ed. Adult Education  
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## **LIST OF ABBREVIATIONS AND ACRONYMS**

AE-	Agricultural extension
ADP-	Agricultural Development Programmes
AAS-	Assistant Agricultural extension
AFM -	Agricultural Farm Mechanization
AFV-	Agricultural Field Visitation
AI-	Agricultural Input
AP-	Animals Product
AO-	Agricultural Output
AS-	Agricultural Supervisor
ASP-	Agricultural Services Programme
EA-	Extension Agent
ES-	Extension Services
ES-	Extension Supervisors
ESD-	Extension Service delivery
ESP-	Extension Services Programmes
CAO-	Chief Agricultural Officer
CLO-	Chief livestock Officer
CCRD-	Chief Crops Research Officer
CY-	Crop Yield
FFP-	Farm Food Product
FP-	Farmers Productivity
IASD-	Impact Of Agricultural Extension services
PAE-	Problems of Agricultural Extension
RAES-	Role of Agricultural Extension services
STM-	Extension Teaching Method

## ABSTRACT

This study assessed the impact of Agricultural Extension Service delivery on farmers' productivity in Dambam Local government Area of Bauchi State, five objectives guided this study. The objectives were, to identify the extension services available in Dambam Local Government Area of Bauchi State, to identify the frequency of extension visit to farmers in Dambam Local Government Area of Bauchi State, to determine the method used for delivery agricultural extension services available to farmers in Dambam Local Government Area of Bauchi State, to identify the impact of agricultural extension services delivery on farmers' productivity in Dambam Local Government Area of Bauchi State, to identify the problems facing extension service delivery in Dambam Local Government Area of Bauchi State. The research design adopted for the study was survey design. The population of the study consisted of ten thousand five hundred and fifty six registered farmers (10,656), out of which three hundred and seventy farmers were used as a sample of the study. Self-developed questionnaire was used for data collection. Copies of questionnaire were given to the supervisors and other expert in the department of adult education for content validation. Test re-test method was used to determine the reliability of instrument and reliability index of 0.60 was obtained. Data collected were analyzed using frequency count and simple percentage. The findings of the study revealed that extension services are available for farmers in Dambam Local Government Area, the frequency of extension visit to farmers were mainly during the rainy and dry season, the methods of delivery of extension services to farmers were through house to house method, individual method, group method, community meeting and field visitation, the impact of agricultural extension service delivery on farmers' productivity were in terms of farmers getting loan/credit facility, farm inputs and increased outputs, the problems facing extension service delivery were irregular payment of the entitlements of extension agents, lack of enough vehicle for transportation, lack of sound mastery of the subject matter and poor network services. Based on the findings, following recommendations were made: government should ensure that the scope of extension services available for farmers are comprehensive enough to cover their ever increasing needs, the extension agents should maintain the frequency of visits to farmers, the extension agents should apply methods of extension service delivery based on the prevailing condition of farmers, the extension agents should sustain the positive impact of their services on farmers and government should ensure regular payment of extension agents' entitlement and provision adequate working facilities.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the Study**

The word agricultural extension services delivery is used in collection with education to educate and explain the method of spreading of knowledge from the University of Cambridge in England to the people outside in order to deliver information.

Extension was derived, from the practice of British universities of having one educational programme within the premises of the university, and another away from the university buildings. The programme conducted outside the university was described as ‘ ‘ extension education’ ’ . The expression connoted an extension of knowledge from the university to places and people far beyond. The term ‘ ‘ Extension Education’ ’ was first introduced in 1873 by Cambridge University in England to describe a particular system dedicated to the dissemination of knowledge to rural people where they lived and worked. Within a short time, the idea had spread to other parts of Britain, Europe and North America. Extension work is an out of school system of education in which adults and young people learn by doing. It is a partnership between the government, the land-grant institutions, and the people, which provides services and education designed to meet the needs of the people (Kelsey and Hearne, 1966).

The history of agricultural extension in Nigeria is interwoven with that of agricultural development in general. This is because Agricultural extension is concerned with all areas of agriculture. During the pre-colonial era by the British, conscious efforts were made in selection, introduction and teaching of the practices involved in producing good varieties of crops and breeds of animals. Farmers selected the best seeds for multiplication, from which the seedlings are been transplanted to their farms. Similarly farmers introduced to their farms improved seeds and animals from their neighbouring communities and from trans-Saharan traders from neighbouring countries. The farmers themselves experimented upon and projected their production methodologies without the assistance of formally designated extension agents. Extension teaching was largely through apprenticeship. Families have taught succeeding generation crop production, animal husbandry and soil management through observation and participation by learners. Neighbours and friends shared new knowledge of improved farm practices. During the colonial era by the British, some agricultural development initiatives were undertaken with the purpose of increasing production. The first step was to establish the Department of Botanical Research in 1893 with its headquarters at Olokomeji in the former western Nigeria (Williams, 1978). Its responsibilities included conducting research in both agriculture and forestry. In 1905, the British Cotton Growers Association acquired 10.35 square kilometres of land at the site now called

Moor Plantation, Ibadan for growing cotton to feed the British textile mills. In 1910, Moor Plantation, Ibadan became the headquarters of the Department of Agriculture in Southern Nigeria, while the Department of Agriculture was established in the North in 1912. In 1921, a unified Department of Agriculture was formed in Nigeria, after the amalgamation of the North and the South. The major policy of the central Department of Agriculture was to increase production of export crops for the British market which was ready to absorb it for its industrial growth. Extension activities were therefore directed towards increasing efficiency in crop production and marketing. Regulations were made to set and enforce standards in export crop production.

According to Obibuako (1983) Agricultural Extension is a dynamic process which promotes learning and brings about changes in what people know, changes in how they react to situations and changes in what they can do with their hands in order to combine the findings of biological sciences and the principles of social sciences (Eremie 2005 and Ileubaioje, 2004). It was this important role of agricultural extension that informed the establishment of the Agricultural Development Programme. With the re-organization and the strengthening of the extension Agents of the Agricultural Development Programme (ADPs), Long before training and visits were lined up (2006), a number of activities were initiated so as to ensure that the seven features of the extension services activities programmes, such as training and visits, demonstration in the field, Agricultural Extension services is the integration of formal and informal educational teaching in agricultural activities, which gave rise to the term “agricultural services”, which aim at providing instructional education on how to increase

farm productivities and improve the living conditions of farmers. Therefore, Agricultural Extension is referred to as the transfer of agricultural technology to rural farmers for application in order to improve their farm productivities (Food and Agricultural Organization). The role of Agricultural Extension is to help farmers to increase crop and livestock production. It is also used to improving Agricultural Technology Practices used by many farmers particularly in rural areas. It is also used to combine the findings of biological sciences and the principles of social sciences to bring changes in knowledge, attitude, skill and practices in and out of school setting (Ilevbaoje, 2004).

Another activity of importance provides human capital towards enhancing the farm inputs, such as fertilizer, chemicals and equipment as well as the flow of information that can improve the farmer's perception and other rural people's welfare (Chukwendu, 2008). The goals of Agricultural Extension is the transfer of information from researcher to farmers, advising farmers in their decision making, educating them and providing them with new practices, such as new improved varieties of the seeds of plants and new breeds of animals, pesticides, insecticides, herbicides, method of animals diseases control, pest control, new farming techniques, demonstration in the field, purchasing farm inputs, delivering information and providing infrastructural facilities. The types of agricultural practices in the study area are usually used to practice agronomy means of cultivating various types of crops, which may be practicing planting, tinning, weeding, fertilizer application, use of chemicals and harvesting crops. Under agronomy, farmers practicing different systems of farming, such as mixed cropping, cultivate more than one type of crop in their farms mono-cropping; in this system farmers cultivate only one type of crop. Mixed farming, on the other hand is a process where farmers cultivate crops and rearing animals on the same pieces of land. Livestock management, which is referred to as rearing animal, provides them food, housing,

medication, water and sanitation in the environment. Poultry production, which is referred to as rearing chickens, such as layers and broilers, for the purpose of egg, while broilers are reared for the purpose of meat under poultry management which is practiced by farmers. Fisheries is the study and production of fishes under the practice of fish farming. Tree crops production, which is referred to as the system of cultivating different types of fruit crops, such as mango, paw-paw and guava, is practiced in the research area. Farmers also used to practice pest and diseases control measures in order to increase their agricultural productivity and improve their physical, social and psychological living standard in the study area.

The Governmental organization engaged in the state is the Bauchi State Agricultural Development Programs (BSADP). It serves as various channels to programs implemented within the state and other Local Government Areas through the use of Agricultural Extension Agents. Such programs are irrigation farming, distribution of new improved varieties of seed, inputs and equipment and modern farm machinery which serve to increase farm productivity by the state in the study area at a subsidized rate (Bauchi State Agricultural Supply Company 1985).

Extension service delivery is the process of transferring new scientific ideas or knowledge of agriculture, health and nutrition to farmers which may help them to improve their life. Mahmud 1994, views extension education, designs to help people in given community to satisfy their need, need interest and aspiration.

Farmers productivity is referred to as a output resource from the farmers such as crops yield, and animal yield getting by the farmers from their own farm.

In Dambam local government area of Bauchi state was observed that Agricultural Extension these governmental programmes help to improve farmers productivity, by the use of new improved varieties of crop seed and animal breed, modern farm machinery and others farms



materials the used to improve farmers productivity which may help them to make their standern of living in their own community.

## **1.2 Statement of the problem**

Famers in Dambam local government area facing a lot of problem with regards to improve method of production, farming system extension services agricultural programs. Agricultural production has been a serious problem in the study area and in Nigeria in general (bindlish and Evension) 1997) farmers are primary producers over the years. The application of agricultural extension services provide a very good development platform, for information which is sharing with regards to a larger number of people by the use of information delivery.

Agricultural faced the following problems and challenges of agricultural practices, which militate against the success of agricultural productivity among farmers. Some of these problems are lack of trained personnel both in quantity and quality has along militated against the effective execution of programs, poormethod of extension services delivery, which means to test, demonstrate and disseminate new information among farmers multiple small scale farmers to be reached and the handling of extension steps in the research area and lack of transportation facilities among the extension services, which may enable them to render their services effectively. In this research, I intended to find out the solution of these worries, problems and challenges among the extension services in the study area.Slow growth in agricultural production has been a serious problem in Nigeria (Evenson, 1997) In this situation, farmers face problems with regard to their method of production, inadequate credit facilities, agricultural inputs such as chemicals and fertilizer and disease infestation. The study set to identify the inpack of agricultural extension services delivery on farmer's productivity in Dambam Local Government Area of Bauchi State

## **1.3 Objectives of the study**

The objectives of this research work are as follows:

- i. To identify the Extension Services available to farmers in Dambam Local Government Area of Bauchi State.
- ii. To determine the frequency of extension services visit to farmers in Dambam Local Government Area of Bauchi State.
- iii. To determine the methods of extension service delivery in Dambam Local Government Area of Bauchi State.
- iv. To determine the impact of Agricultural Extension services delivery on farmers' productivity in Dambam Local Government Area of Bauchi State.
- v. To identify the problems facing extension service delivery, in Dambam Local Government Area of Bauchi State.

#### **1.4 Research Questions**

The following question guided this study:-

- i. What are the extension services available to farmers, in Dambam Local Government Area of Bauchi State?
- ii. What is the frequency of extension services visits to farmers in Dambam Local Government Area of Bauchi State?
- iii. What are the methods used for extension service delivery in Dambam Local Government Area of Bauchi State.?
- iv. What is the impact of extension services delivery on farmers' productivity in Dambam Local Government Area of Bauchi State?
- v. What are the problems facing extension services delivery, in Dambam Local Government Area of Bauchi State.

#### **1.5 Significance of the Study**

This study was significant in so many ways when conducted, considering the importance attached to the impact of agricultural extension service delivery to farmers in Danbam Local

Government Area of Bauchi State. The study is significant to researchers, farmers and students in some or related areas. Findings are useful in filling the gap existing in the literature on the impact of Agricultural Extension Services delivery in farmers productivity and provide effective information about the social and economic living standards of farmers in Dambam. The study would also be significant to the extension worker so that efforts will be made to mobilize the farmers to participate actively in food production, animal production, poultry production, fish production and other agricultural practices. It was also serve as a tool for improving the level of awareness to farmers in the community towards the development of agriculture.

#### **1.6 Scope and Delimitation of the Study**

The study covered Dambam Local Government Area of Bauchi State to find out the extension services delivery available to farmers, the frequency of extension services delivery visit to the farmers, the methods of teaching used for extension delivery, the impact of agricultural extension services delivery on farmers productivity, and the problems facing extension services delivery in Dambam Local Government and the delimitation of study was not look at the factors affecting agricultural extension services and also the utilization of agricultural service delivery. It is focused on Agricultural Development Programme and aimed at improving the economy, and standard living of farmers in Dambam Local Government Area of Bauchi State.

#### **1.7 Operational Definition of Terms**

Terms used in this study are here by operationally defined

**Agricultural Extension:** This refers to assistance to farmers to help them to identify and analyze their production problems and become aware of the improvement.

**Extension worker:** This refers to men and women employed by an Extension Agency.

**Extension Delivery:** This means communicating research findings and improved agricultural practice to farmers.

**Extension services:** These are services carried out by education, establishment government or nongovernmental organization (NGOs) examples of these include adult literacy, Extra Classes, distance learning programs.

**Frequency of Extension Visit:** A total number of extension services visit to farmers in their own community.

**Impact of agricultural Extension Service:** This indicates that agriculture plays a critical role in promoting economic growth, food security, poverty reduction, livelihoods and rural development.

**Method of teaching extension service:** These methods used by extension workers in transferring new ideas to farmers. Examples are home or farm visit, individual visit, group meeting and field demonstration.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

This chapter presents the review of the related literature to the study. It is organized under the following sub-headings; theoretical framework, conceptual framework a brief history of agricultural extension, the concept of farmer productivity, extension services delivery, extension agents agricultural development, the role of agricultural extension, the impact of agricultural extension, extension teaching method, the challenges faced by agricultural services

delivery, and finally, a review of the impherial study, summary of related literature and the uniqueness of the study.

## **2.1 Theoretical framework**

### **2.1.2 The Rolling Theory of Agricultural Productivity**

Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs. While individual products are usually measured by weight, their varying densities make measuring overall agricultural output difficult Rolling (2004). Therefore, output is usually measured as the market value of final output, which excludes intermediate products such as corn feed used in the meat industry. This output value may be compared to many different types of inputs such as labour and land (yield). These are called partial measures of productivity. Agricultural productivity may also be measured by what is termed total factor productivity (TFP). This method of calculating agricultural productivity compares an index of agricultural inputs to an index of outputs. This measure of agricultural productivity was established to remedy the shortcomings of the partial measures of productivity; notably that it is often hard to identify the factors cause them to change. Changes in TFP are usually attributed to technological improvements.

Agricultural extension, whether public or private, operates in a context or an environment that influences the organization, form, and content of transfer activities (Moris, 1991). The dominant characteristic of that context is change. Because the changes affect all aspects of extension, the context should be examined and understood so that extension can be better managed.

This chapter first places extension within a system of agricultural technology generation and transfer. Two major sections follow. One describes the macro-context factors: agroecological, infrastructural, policy, political-economic, and sociocultural. The other looks at the institutional context, namely, other institutional actors involved in activities related to

agricultural extension such as research and transfer, education and training, input supply, and credit.

Extension planners face some difficult choices because of the need to respond to the diverse technology and information needs of farmers from many different zones and, at the same time, to satisfy a requirement for extensive countrywide coverage of the rural population. For example, extension resource investments can be determined by farmer population concentrations, potential productivity of selected agroecological zones, or a combination of both.

### **Political-Economic**

The political and economic environment affects extension in many ways. One of the most significant factors is a country's stage of economic development. Another is the level of government investment in public sector extension. This is influenced by the presence or absence of a structural adjustment programme, the degree of economic dependence on agriculture, and the proportion of the population economically active in agriculture as opposed to industry. The percentage of resource-poor smallholder farmers influences the type of technology to be transferred, particularly if government is concerned with the equitable coverage of all categories of farmers.

Politics has another, infrequently identified impact on public extension organizations. Political shifts at the national level often result in changes in extension personnel, management, and programmes. High turnover of top managers undermines management experience and continuity in leadership. In addition, political unrest and war often make extension efforts impossible (Gustafson, 1994).

### **Sociocultural**

In many countries, sociocultural factors are leading constraints to the effectiveness of extension. Language differences and illiteracy can impede the communication of improved

technology unless they are taken into account. The division of labour between the sexes can differ along cultural lines and influences the nature of farming systems in different regions. In many countries, the men are employed off-farm, leaving the farm operations to women. In extension organizations, under representation of women on the extension force means that the production responsibilities and needs of women at the farm level may not be adequately addressed.

Cultural differences among farmers, as well as differences in their resource endowments, also need to be taken into account. In particular, these are reflected in land-use strategies. Pastoral herders, for example, will require different types of subject-matter expertise, and extension will need to use different strategies to transfer technology to them than to permanent field agriculturalists. The resource endowments of different categories of farmers also affect technology adoption levels. Subsistence farmers adopt mainly low-cost technologies. For this reason, extension work that focusses on cultural practices and affordable technologies may be more appropriate in countries with large numbers of resource-poor farmers.

## **Policy**

The policy component of an agricultural technology system can enable or limit extension in ways beyond the reach of extension managers. The principal areas of influence are price signals to farmers and decisions by government that affect public agricultural development organizations.

*Agricultural Development.* Policy-making bodies of government set development goals and objectives such as achieving food security or surplus agricultural production to stimulate economic growth, or providing health care and education for rural development. It is the task of government extension organizations to help meet these goals by formulating subordinate objectives and strategies to achieve them.

Agricultural research organizations in developing countries confront many problems (Idachaba, 1987; Oram&Bindlish, 1984). These include lack of financial resources, acute shortages of well-trained scientists, lack of farmer feedback to ensure relevance of research results, lack of access to external sources of knowledge, inadequate research facilities and equipment, low staff morale, and inadequate operating budgets, staff incentives, and remuneration. Few of these can be addressed by extension managers, but they can impede the generation of technology, resulting in fewer research outputs for extension to transfer.

## **Input Supply**

Farmers need inputs to increase production, but access to these is often poor in less developed countries. While inadequate transport and marketing infrastructure are often at the root of the problem, there are certain aspects that can be addressed by extension.

The model used here identifies an agricultural knowledge system consisting of four components set in a larger context (Figure 1). The components are technology generation, technology transfer (knowledge and input transfer), technology utilization, and agricultural policy (Swanson, Sands, & Peterson, 1990). The organizations that constitute the



components, as well as others in the system environment, influence each other in complex ways. Such publicly funded systems are established by governments to improve the conditions of life and well-being of rural and urban populations and to increase agricultural productivity.

### **Conceptual Framework**

Under this heading, the study focused on the concept of the Impact of Agricultural Extension service delivery on Farmer's Productivity in general as well as scholars and researchers. The study also discussed the following sub-headings: -

#### **2.2 The Concept of Agricultural Extension Services**

Extension has been defined in several ways by different scholars. Literally extension means to extend, project, elongate, stretch or reach out to someone with the bid of helping that person. Briefly, extension is reaching out to people with the knowledge or discovery arising from research in order to positively affect the socio-economic life of the people (Mabel, 1999). Putting it more succinctly, Maunder (1973) and Swanson (1984) regard extension education as a process of the concretization, sensitization and mobilization of rural people, individually and collectively, to recognize their problems; feel the need for solutions and encourage them to willingly take steps to solve these problems using their own resources, cultural and economic, so as to improve their well-being. The essence is that it is through educational procedures rural people are equipped with appropriate methods, practices and technologies that will increase their production efficiency, raise their income levels and consequently raise their standard of living.

##### **2.2.1 Extension education**

Is also viewed as the non-formal out of school system of education designed to help people in a given community to satisfy their needs, interests and aspirations in a similar way. Obibuaku (1983) had defined extension as an informal out of school system of education designed to

help rural people to satisfy their needs, interest and desires. Therefore, it is a system of education which involves adult learners and so is an educational process directed to bring about changes in people. Extension education is thus an applied behavioral science the knowledge of which is applied to bring about desirable changes in the behavioral complex of human beings usually through various strategies and programmes of changes and by applying the latest scientific and technological innovations. It has now been developed as a full-fledged discipline having its own philosophy objectives which must be understood by every extension worker and others connected with rural development. It needs to be mentioned here that extension education, its principles, methods and techniques are applicable not only agriculture but also to upon its application and use. Various nomenclatures have been given to it, such as agricultural extension, veterinary and animal husbandry extension dairy extension, home science extension, public health extension, and family planning extension.

### **2.2.2 Extension**

Agricultural extension is non formal education made for the farming communities separate to several countries, and world wide and is now used by government and non governmental organization stimulate the desirable rural development in agriculture Smith 2005.

### **2.2.3 Agricultural extension services**

Agricultural Extension is the process of conveying beneficial information to farmers, as well as serving as a vehicle through which the problems of farmers are taken to the Research Institution for a solution, (Ogieve, and Erebor, 1983). Is a formal and informal process which aims to teach rural people on how to improve and increase (Agricultural Production?)

## **2.3 The Concept of Farmer Productivity**

Productivity is refers to as the available resources used by farmer in order to improve farmers out put such as varieties of crops and animals breeds by the used of new techniques and agricultural resource input such as fertilizer chemicals modern farm machineries such

tractors and spraying machine, harvester in order to improve farmers productivity and standard living of farmers in their own community. A study conducted by Ilu (2002) on assessing the educational level and job performance of frontline extension workers in Kano State proved that education is a pre-requisite for the application of technologies for improved productivity and economic development. The study further proved that the educational level of the Extension Agent is an important determinant of their performance.

## **2.4 History of Agricultural Extension in Nigeria**

In the development of Extension Services in Nigeria and the early strategies used in an attempt to boost agricultural production, Omokore (1991) pointed out that the development of extension services in Nigeria is closely related to two factors, which are: -

- i) The changing political condition and
- ii) The growth of the civil service structure as evidenced in the establishment of agriculture related Departments and institutions at both the Federal and Regional/state levels. Thus, the formation of an Agricultural Department of plantations in Ibadan for southern Nigeria may be regarded as the first attempt to lay the foundation of Nigerian Extension Services. A similar Department for Northern Nigeria was established in Samaru in (1992) by the colonial administration (Federal Ministry of Science and Technology, 1988) accompanied by the establishment of a laboratory in Vom for the production of vaccines against Rinderpest, the Newcastle disease, Anthrax, Brucellosis etc. and the enhancement of the forest law (1982), which empowered the administration to have clearly defined forest reserves to support trade in timber and woods for those who indicated their interest in the work of forestry, Fisheries and the extension work could have started in 1945 (Richards Constitution), which led to self-Government and gave rise to the establishment of the Department of Agriculture in the former Eastern, Western and Northern Regions of Nigeria. In each of the Departments, an Extension Services Division was established along with other Departments, such as

Research, livestock and forestry. Thus extension work becomes clearly a Regional Government's responsibility.

During this colonial period, native Authorities (NA) also had Departments of Agriculture, which were responsible for some degree of extension work at the local level under the supervision of the Regional Government. Perhaps the most significant development of the immediate post-independence era for agricultural extension, particularly in Northern Nigeria, was the transfer of the research arm of the Ministry of Agriculture and (now is called Institute for Agriculture Research in Ahmadu Bello University, Zaria (established in 1962). It was followed by the Agricultural Extension Research Liaison Services (AERLS) in 1963 and the Federal Ministry of Science and Technology (1988). A similar development also occurred in western region with respect to its Department of Agriculture in Obafemi Awolowo University, Ile-Ife.

With the creation of more states in 1968, 1975 and 1987, each state established a Ministry of Agriculture primarily with extension responsibilities at the Federal level. The Federal Ministry of Agriculture came into being in 1968. Initially, the ministry's responsibilities included the planning and co-ordination of the National Agricultural Programs, as well as the control of the activities of Agricultural Research Institutes. Federal Ministry of Science and Technology is now under National Agricultural Research Council Headquarters in FCT Abuja.

For centuries, people in Nigeria have improved agriculture through the use of simple farm tools used to till the soil and the cultivation of crops to meet family needs (William, 1978). According to Atala (1979). Extension emergence in Nigeria was part of the colonial efforts that directed and encouraged farmers to increase Agricultural production mainly for its home needs. With the advent of the British and the colonization of Nigeria modern

agriculture appeared. This period was also the beginning of direct government involvement in the development of agriculture.

The establishment of the Department of Botanical Research with headquarters at Olokomeji in the former western Nigeria dated back to 1883 when agriculture in the Nigeria was organized. More plantations were established (1899) at Ibadan and became the Headquarters of the Department of Agriculture for southern Nigeria. During this period, under the leadership of Lugard, Department of Agriculture was established at Samaru,Zaria in 1912. Following the amalgamation of the Northern and Southern protectorates, the Departments became unified in 1914 with full programmeservice by two Research Stations at Ibadan and Samaru.

With the creation of states, each Ministry of Agriculture maintains a Research and Extension Division, so does the ADPs and River Basins. In the 1970s, the Federal Government became dissatisfied with the past agricultural development due to increase in the importation of food,since the government of the federation had introduced a number of agricultural programmers like food security in the country. The programmers were national Accelerated Food Production Programme (NAFPP in 1972, River Basin Development Authority(RBDA), the Agricultural Development Project (1975) and Operation Feed the Nation (OFN) in 1980. Each of these programmeshas made a certain provision of Extension Services in order to boost food production in rural areas.

## **2.5 Agricultural Extension services delivery**

Some of the Extension Delivery Services. TheDirectorate for Food, Roods, and Rural Infrastructure (DFRRI), Agricultural Development Project (ADP) and Training on visit (T and V), the University based on Agricultural Extension Project, as well as Private Agencies Extension Services and Research – extension farmers. Extension service delivery is the process where new ideas about farming are disseminated to farmers and at the same time,

their feedback is taken back to the Research Department (Anumudum, 1991). According to Adam (1980) Agricultural Extension Delivery in this context helps rural people in the acceptance and application of scientific and technological innovation to the problems of agricultural production with the ultimate aim of increasing production and improving the living standard of farmers (Abubakar, 1983). Also, the main aim of Agricultural Extension Service Delivery where ever established is to change the knowledge, skills and attitudes of people.

Fortunately, with the developments of communication technology in Nigeria and the number of active mobile phone users, which is currently being estimated by Ventures Africa to be about 110.3 million as at November 2012, making about 66.4% of the entire Nigerian population, this connotes that are reasonable and a large number of farmers have access to mobile phones, making it practically possible to attempt the task of bridging the information gap. Therefore, the Federal Ministry of Agriculture in collaboration with the Telecom service providers should create an Agric call center to improve extension services. The federal Ministry of Agriculture should liaise with these Telecom operators and reach an agreeable term on how to create a toll free line that can accommodate multiple callers per time and also be called from any network. It is also important for the Telecom organizations to help with personnel training and guide the Ministry on how to acquire and maintain the call centers infrastructure and facilities since they have decades of experience. The call centers should be created as an arm under the new Department of Agricultural Extension of the Federal Ministry of Agriculture, and fully equipped, staffed and funded by the Ministry. The call centers should function in multiple Nigerian languages and serve as a means of enlightenments and awareness.

The funds generated from agro-allied industries advertisement could be used as part of the operational cost for the call centers. These centers must be monitored by the Federal Ministry

of Agriculture and a monthly performance report should be submitted always in order for the Ministry to keep proper track records of the current developments of the Agricultural Production output by farmers (Federal Ministry of Agriculture).

It's a toll free line where farmers can obtain knowledge and information easily. Call centers provide technical assistance to the caller and will record the queries along with the personal detail. It also reduces the problem of inadequate extension agents as most farmers would prefer to call at their convenient time, rather than keep an appointment with an Extension Agent. Although it is important to note that the usefulness of Extension Agents is vital, they would be responsible for field demonstrations and other technology transfer services.

It can also be used as a means of reaching out to farmers about new innovations through call advertisement, as it is being practiced by the telecom operators. It gives the farmers access to any Agric question or topic gathering idea which improves feedbacks as calls will be recorded and improves the monitoring of quality extension services, in Nigeria as proper records can now be kept. Information can be gotten anywhere in the country with network signals.

Farmers detail requests during calls can be used to estimate the amount of their using mobile phones. It will also enhance a fertilizer supply scheme as a result of improved farmer feedback through direct contact with farmers.

However, due to the poor network problems being experienced in some parts the country; it is recommended that farmers should get additional networks. SIM cards different from the ones they currently have, so that in case they experience network problems on one, the other will serve, as it is rare to find multiple networks in order to avoid having problems at the same time. Nigerian Communication Commissions (NCC).

The word "extension" is used in connection with education a decade ago to explain the methods of spreading of knowledge from the University of Cambridge in England to the

people outside in order to deliver information (Halima,2006). And also extension as a scientific, non-formal and out of school education and training process aimed at extending new scientific information and method of agriculture, health, nutrition and home economics (Mahmud, 1994).Dukka (1991) views"extension" as the non-formal, out of school system of education designed to help people in a given community satisfy their needs, interests and aspirations.

Agricultural Extension services working with rural people through out-of-school education, providing farm families with new knowledge and skills along those line of their current interests and needs, which are closely related to increasing farm production and improving the physical level of the living of farm families (Mosher, 1978). An effective extension service is of great significance and is highly needed, since it acts as a good for research, recommendations to pass down farmer's and over-come some of the identified constraints. At the same time it carries back problems from farmers to researchers for solutions.

### **2.5.1The Extension Services and Agricultural Development**

In most developing countries, subsistence or traditional agriculture dominates the economy both for national progress to occur, change in agriculture is essential. Substantial change is needed if diet is to be improved and if its surplus is to be produced for sale. And if agriculture is to enter a phase of self-sustained growth (Ajayi 1999),change is needed not only in increased production, but to liberate households from poverty, the drudgery of manual labour, ill-health, and early death. The dependency relationship associated with the unjust distribution of capital and wealth, particularly land, can then be overcome. A great deal of the responsibility of bringing about this change is the activities of extension services the representatives of commercial firms or public cooperation, the men and women at the frontline of the struggle for progressive changes in agriculture.Samanta (1991) asserted that rural living standards are depressed and traditional values predominate.It may be practicable



to teach new methods and techniques of production until the desire for changes has been voiced by the people. In this situation, the extension education agent assumes the role of change by the cooperation of people's desire for change, helping farmers to identify and analyzing their own problems. McDermott (1987 cited in Samanta1991) stressed that many physiologists and social scientists believe that knowledge brings about desirable changes in human behavior. That behavioral changes may be in the people's attitude, beliefs, skills, understanding and perception of the farmers. Agricultural knowledge, which is influenced by so many factors, is important for his understanding of the research process, knowing the limit to the research and communicating on a professional level in the researchers. In this field, the Extension agency contributes its quota tremendously.

To the credit of past extension efforts, farmers in developing countries have accepted many of their recommendations for modernizing agriculture, especially in the use of inorganic fertilizer, to some of the traditional methods that have been abundant, such as the use of the organic method of storing facilities and the use of animal transaction for land clearing. Bello (2007) stated that "in numerous ways, the Extension Agent's task will be made more easier due to the fact that farmers have learned many of the things may have taught to them for the past 30 years it has been an experience for Agricultural Development experts to have admit that may be, we should have listened to the farmers before assuming there knowledge and even ignorance, while adopters were consider to be progressive."

The researcher believes that if Agricultural Extension to the research area is fully motivated, such as salaries/wages, working facilities and materials, professional training, free and frequent communication, cordial relationship between the Extension Agent, farmers, supervisor officers, the productivity of the agriculture will be effectively improved and increase to sustain the life of people in an area of study

## **2.6 The Role of Agricultural Extension Service Delivery**

Extension is an education process for bringing about the maximum number of desirable changes among people, which involves both learning and teaching. Learning is the process by which an individual, through his own activity, attains a change in his behavior. It is an active process on the part of learner. According to FAO(2002c), communication and information service promotes agricultural and rural development and provides important networks and tools for the success of food security and food safety programmes. He also views communication services, which often contribute more participatory and integrated focus to project limited strictly to technology demonstration. Reducing poverty and food insecurity (FAO, 1997, 2002), the Food and Agriculture Organizations of the United Nation (FAO) council was directed to establish inter-governmental working groups to elaborate member state efforts towards achieving the progressive realization of national security. For income generation producers as well as among those in rural areas who do not work on the land (Eicher, C.K and J, Staaz (1984),radio is the most widespread and popular medium of communication in the rural areas of developing countries.Video for effective training farmer-to-farmer communication increases new information and communication technologies, such as computers, telephones and satellites are being adopted to Rural Development needs.

To help poor farmers gain access to capital either through saving or credit for agricultural production or through micro-enterprise development, whether agricultural (Steele, 2003) or non-agriculture; to strengthen the human resource capacity of poor farmers 'organization (McGregorkone 1990) as well as self-help group capacities, rural education and extension for health and nutrition, helps farmers to increase their plant and livestock production. Also, it acts as connecting link between the researcher and farmers in the communities. And also certain skills and specialization in the production of certain crops and animals are also acquired by the farmers'.

## **2.7 The Impact of Agricultural Extension Service Delivery**

The population of farmers and rural dwellers who depend either directly or indirectly on agriculture for their livelihood and survival, Alston and Pardon (1996). This indicates that agriculture plays a critical role in promoting economic growth, food security, poverty reduction, livelihoods and rural development. Contemporarily, there is high demand for food commodities due to population growth and urbanization. Traditional subsistence agriculture cannot sustain this high food demand and population pressure. Therefore, there is a gradual paradigm shift occurring from traditional subsistence agriculture to market-oriented production. In addition, the fertility of agricultural lands has been declining over the years due to continuous cropping on the same pieces of land. This is arising from the limited land available for crop production, particularly rice. Food production in Africa, especially in Ghana, is predominately undertaken by smallholder farmers who usually cultivate less than two hectares. Available statistics show that rice producers the local demand. The deficit in food supply is sufficed by imports.

However; Application of chemical fertilizers has been a key of green revolution around the world, Higher rates of soil fertility decline and consistent lower crop yields necessitate the increased use of inorganic fertilizer in Africa. However, evidence shows that adoption of chemical fertilizer is low in Africa Oram&Bindlish, 1984). Particularly among rice producers in Nigeria. One of the avenues for increasing the adoption of chemical fertilizer in the country is through the efficient agricultural extension service. Christoplos (2012)concept unlisted an efficient agricultural extension service as comprising all the different activities that provide the information and advisory services that are required, and demanded, by farmers and other actors in the agric food systems and rural development. Agricultural extension strengthens a farmer's capacity to innovate by providing access to knowledge and

information. Farmers also advocate that the development of agriculture depends largely on access to new technologies and information.

However, it is evident that farmers' access to agricultural extension in the country is low ADP's this raises the following pertinent research issues: What factors influence farmers' access to agricultural extension service? What is the impact of agricultural extension service on adoption of chemical fertilizer and crops yield? What impact does adoption of chemical fertilizer have on rice productivity, and help farmers to improves their Agricultural Production and Economic living stranded Oram&Bindlish, 1984).

According to Rolling (1991) and Kainowith(1990),extension workers should focus on overall livelihood enhancement in order to encourage rural people with the potentialsto continue that the traditional agricultural intervention may not service the needs of non-landed rural people and the extension needs to be responsive to the changing needs of rural people.

Alston and Pardon (1996) reported that research and extension are used as an effective mechanism for reducing poverty in rural areas. The retreatment of Agricultural extension by the state Department of Agriculture is expected to have targeted medium and long term impact for agriculture. Marsh and Panel (1999)reported that the development of extension services is offered by government support. They reported that, there are few incentives for the private sector to provide public good information in agriculture where information is disseminated as a secondary task, which complements other activities.

## **2.8 Extension Teaching Methods (ETMs)**

Supe(1997) that the communication process of extension teaching methods or channels of communications are the tools in the hands of extension workers in transferring new ideas. An extension worker has to deal with many rural people. One of the methods to deal with them is personal visits by the extension worker to the farm or homes of the farmers. Personal visit represent a best learning situation but it may not be always possible to visits the farmers. The

extension worker has therefore, to use other teaching methods for reaching the maximum number of people effectively. Other studies have shown that more different extension teaching methods may be required to awaken a desire for change and give farmers self-confidence to embark on what they may see as a dangerous undertaking.

According to Adams (1975), extension methods are often classified into three ways in terms of target audience:

- a. Group Methods:** These are aimed at a particular reference group and involve face to face contact between workers and farmers; they consists of methods demonstration and farm tours. However, this refers to bringing together two or more people at a particular point for the purpose of educating them on subject matter of interest to them at the same time.
- b. Individual Methods:** These are aimed at individual farmers, who receive the undivided attention of the extension workers and consist of home and farm visits, personal letters and telephone calls. And also this refers to the education of just a single client by an extension agent to attend at a particular point in time.
- c. Mass Media Method/ Modern Methods:** These are new or civilized ways of sending information to farmers by the use of mass media. This is aimed at reaching or covering mass farmers at different areas, such as radio television. These are aimed at the general farming public with no personal contact between the extension worker and the audience. The main characteristics of these methods are that information can be disseminated to a large number of persons in different locations. The mass media extension teaching method includes those methods which use an audio visual approach that consists of television, film, radio and print media that include bulletins, leaflets, cinema and circular letters.

- d. Radio:** This is one of the fastest and easier ways of getting information to farmers, as most people even in the rural areas have radios.
- e. Television:** Television is an electronic audio visual medium, which provide pictures with words and sound effects. It can be used to create instant mass awareness, as it deals with typical problems and provides solutions. It contributes information and speeds up the process of adoption.
- f. Conventional Method:** This is an old traditional way of the dissemination information to farmers. They are contacted either as individual or groups at a time and have conveyed the necessary information to them in the various conventional methods.

## **2.9 Problems of Agricultural Extension Services Delivery**

The extension agent experiences so many problems in introducing new innovation to farmers or rural people due to their existing customs, beliefs and traditions. Nevertheless, most of the extension agents are not aware of the social and cultural problems and the changes of peoples in the community and their potential social constraints. In this situation, there may not be effective services to the peoples and systematic advice is given and whatever is there may not be relevant and, as such, affects their performance in the extension. In recognition of extension agent's services to rural farmers, various efforts are being made and are still going on at international, regional, national, state and Local Government levels (Miko 2000).

Agricultural extension is faced with a number of problems that usually militate against the success of many agricultural developments, particularly in Nigeria (Yusuf, 1998). According to Williams, (1978) lack of trained personnel both in quantity and quality has for long been militating against the effective execution of programs. They are often lacking in practical ability as a result of poor training and selection. Adam (1975) stated that methods rather than farm technology as exemplified by experts in audio visual aids who were skilled in design

and presentation, but lack the practical training in agriculture necessary to test and demonstrate agriculture improvements, inadequacy of social amenities, such as office accommodation and especially lack of transport facilities, seriously undermine the efficiency of the services delivered by extension agents, as it limits the scope of operations. Williams (1975) outlined some problems militating against the progress of extension service:

Staff training and turnover

Lack of coordination with the Universities

Lack of national extension service

Inadequate of service amenities

Lack of credit facilities

Lack of subject matter specialization

Lack of evaluation techniques

According to Chukwudi (1998), extension in developing countries is faced with the following problems:

- a. **Inadequate supporting service:** Most of the farm inputs supplied to farmers are inadequate and, in most cases, the inputs arrive very late to be useful within the farming season.
- b. **Poor Ratio of Extension Staff to Farmers:** Very few extension workers are available to service too many farmers. A ratio of one extension staff to cover one thousand farmers cannot ensure effective communication.
- c. **Training for Staff and Farmers:** Extension workers need training in modern agriculture to be effective in teaching farmers. They should be equipped to be able to develop practical skills in their clients.

- d. Lack of Program Evaluation:** Most programmers in agriculture are not evaluated against set objectives. These are needed for effective monitoring of projects; periodic evaluation is necessary in order to appraise and make programmes to be effective.

## **2.10 Review of Empirical Studies**

There have been several researchers who indicated that extension Agents sometimes shy away from their responsibilities or fail to play their roles on their target groups. But other studies have revealed that they achieved a major success (Danjuma, 1994). Williams (1978) observed that most farmers attach great importance to services rendered to them by Extension Agents. Many farmers felt that change agents did not pay them the needed visits in order to enable them to have new ideas to put in to practice so as to improve their farming techniques and productivity.

The section will review some stages that have been carried out in different areas of Agricultural Extension roles and the impact, assessment and increasing farmers' productivity towards rural agricultural development in Nigeria. Ayomoh, Roselina (2008) conducted a research titled "Farers?: Assessment of Public Extension on increasing farmers' productivity in Gombe state in Dukku Local Government Areas." The study examines the status the large scales survey was conducted on a random sample of three thousand farmers and two thousand one hundred and fifty (2,150) famers were selected in the Local Government Area. The survey sought information from the Local Government and among the 2,150. Then, two hundred farmers (200) answered the questions by using a questionnaire and face to face interview using percentage.

Shehu Bashir (2006) conducted a research Titled: the role of agricultural extension on enhancing farmer's productivity in Zamfara state, Gusau local Government area. Four Thousand (4,000) farmers were selected using a stratified random sampling technique. Three



research questions and the two null hypotheses were formulated to guide the study. Three hundred farmers (3000) were selected using random sample to generate data. Data collected were analyzed using percentage to answer the research questions, while ANOVA was used to test the hypothesis. The result shows that many farmers are not professionally using new farming techniques, so that they seek for extension services guide.

Banlish, Visha (1979) conducted a research on "The Impact of Agricultural Extension and the Rural Development in Bauchi state in Kirfi Local Government Area on the irrigation system of farming, One Thousand farmers (1000) were selected using stratified random sampling and 400 answered questions using percentage to answer the research questions. Data were collected by using face to face interview by the extension service in the area of study and result was analyzed using percentage.

The Bauchi State Agricultural Development Programme (BSADP) conducted a research on the Roles of Agricultural Extension Services in Disseminating Information to the farmers in Katagum Local Government. Five thousand farmers (5000) were selected by using random sampling to answer the question "Is there any new innovation by the Agricultural Extension Services Delivering in the Local Government Area" 3000 farmers answered the question and the data were collected using face to face interview and analyzed using percentage to answer the research question.

## **2.11 Summary of the Literature Review and the Uniqueness of the Study:**

The research work is to examine the major issues around and the consequences of the impact of agricultural extension services delivery on farmer productivity in Damba Local Government Area of Bauchi State. The chapter identifies the theory of Adam Smith based on modern extension the human capital theory. According to Fizinons (1997), the human capital theory is the most influential model of western education. Also the chapter identified the concept of agricultural extension, brief history of agricultural extension services, concept of

farmer productivity. It revealed much more about the agricultural extension services delivery (Halima 2006), where she identified the people outside in order to deliver information. The chapter also described the extension agent and agricultural development, the role of agricultural extension, the impact of agricultural extension. Ariston and Pardon (1996) reported that extension is used as an effective mechanism for reducing poverty in rural areas. It also identifies the extension teaching method, which includes individual methods, group methods and the mass media method. Also the chapter highlights some challenges faced by agricultural services delivery. According to Williams which include lack of training personnel, lack of credit facilities and poor or inadequate service amenities.

The study is unique in a number of ways. Similar studies have been conducted on agricultural extension service in Bauchi State of Nigeria. None was conducted in Dambam local government. This kind of research has never been conducted. However the previous studies were conducted on the impact and the assessment of public extension and farmer's productivity in Gombe State, Dukku Local Government Area by Rose Lina (2008). Also, another study was conducted on the roles of agricultural extension on enhancing farmer's productivity in Zamfara State, Gusau Local Government Area by Shehu (2006). Another research was conducted on the roles of agricultural extension services in disseminating information to farmers in Katagum local Government Area by Bauchi State agricultural development program (BSADP) (2012), while this research focuses on the impact of agricultural extension services delivery on farmers productivity in Dambam local Government Area of Bauchi State toward extending and to improving the economic and the standard living of the farmers in the study area.

## **CHAPTER THREE**

### **METHODOLOGY**

This chapter presents the methodology used in gathering data for this study. These include research design, population of the study, sample size, sampling procedure, data collection instrument, the validity and reliability of the instrument, administration of research instrument and procedure for data analysis.

#### **3.1 Research Design**

The research design adopted in the study is survey it is defined as the act of seeking information from a group of selected individuals from the population (Binary 2000). Survey research design is used for gathering factual information data on attitude, preferences, belief and prediction behaviour and experiences both past and present. Moreover, the design aims at collecting data using a questionnaire and an interview from the sample that will be selected to represent the population about which the findings of the data can be generalized. This study used survey and investigated the Impact of Agricultural Extension Services Delivery on Farmer's Productivity in Dambam Local Government Area of Bauchi State. It is a survey in the sense that it treated a current phenomenon, described explained and established the occurrence of the variables under study. This is supported by Sambo(2005) that in survey design information is gathered on a representative sample from which inferences are made as to what obtained in the whole population.

#### **3.2 Population and sampling of the Study**

##### **3.2.1 Population of the Study**

The population of the study comprised all the farmers in Dambam Local Government Area, the study of the study comprise registered farmers in Dambam, Local Government Area of Bauchi State which has a total number of (10656). The population was drawn from Dambam

with 7,000, Dagauda with 2,147 and Jalan with 1,509. The population was drawn from agricultural department of Dambam local government area of Bauchi state in the year 2018.

**Table I:** Population of farmers according Districts

S/N	District	Population
1	Dambam	7000
2	Dagauda	2,147
3	Jalam	1,509
	<b>Grand total</b>	<b>10,656</b>

Source:Dambam Local Government Agric Department

### 3.3 Sample Size

Out of (10656) farmers that serves as population of the study (365) respondent were selected as a sample size for the study, the choice of the sample size of the population, was in line with the research advisor ( 2006) table.

**Table 2:** Sample size of farmers drawn according to District

S/N	District	Population	Sample Population
1	Dambam	7000	243
2	Dagauda	2,147	75
3	Jalam	1,509	52
	Total	10656	370

Source: AgricDepartment Dambam L.G.A

### **3.4 Sampling Technique**

The research adopted the use of proportionate random sampling techniques from the total population, of rural farmers. The research considered of registered rural famers in Dambam Local Government Area of Bauchi State, the sample was selected accordance with number of farmers par wards, thus, proportionate sampling was used to draw a sample from each ward, a( A sample) for a study from a large group (A population ) these is an important because each individual was chosen entirely by chance, and each number of population has an equal chance of been included in the sample, and bias is reduce.

### **3.5 Instrument for Data Collection**

This study used a self designed questionnaire named farmers questionnaire on impact of agricultural extention on farmers productivity (FQUIMAEXPFPPO). The instrument consist of up section namely section A and B. The section A elicited data on demographic characteristics of respondents, section B source data on farmers rating on agricultural extention services and section B has (5) sub section, sub-section 1 focused on available agricultural extention services, sub-section 2 determine frequency of agricultural extention services visit to farmers. Sub-section III identify method of teaching used in a extentionsevice delivery, sub-section IV elicits data on impact of agricultural extention service to farmers and lastly sub-section V sought data on the challenges of agricultural extention service delivery. All the sub-section they are forms of on (25) section in weeks of the responding is best on 4 likert scaling that is strongly agreed (S.A), agreed (A), strongly disagree (S.D) and disagreed (D) the pattern of the scoring are SA=4, A=3, SD=2, and D=1. Therefore, mean of 2.50 and above is regarded as accepted and below 2.50 is regared as not accepted.

### **3.5 Validity and Reliability of the Instrument**

#### **3.5.1 Validity of the Instrument**

To ensure validity of an instrument content validity was used to determine the validity of instrument were given to the supervisor, expert on department of adult education and community services Bayero University Kano test and measurement and extension services. The experts were drawn from department of adult education and community services, department of test and measurement, Bayero University, Kano. The validators ascertain the appropriateness of the instrument in relation to the objectives of the study. The instrument was corrected based on observation, the researcher distribute the questionnaire to the beneficiaries of the programs to answer the question, through the aid of research assistance.

#### **3.5.2 Reliability of the Instrument**

In order to determine the reliability of instrument test and the re-test method was used in order to have consistency of responses, the researcher administer the instrument to the respondent and the retrieve back after two weeks, and also the same questionnaire and was distributed the result obtained from the first and second administered, were correlated by using Pearson's product moment correlation (PPMC) was 0.60 reliability index, Was obtained to indicate. This shows the instrument is reliable for this study.

### **3.6 Administration of data collection instrument**

At the first stages the researcher collected an introductory letter from the department of adult education and community services which was taken head agricultural extension unit of the Dambam local government area of Bauchi state. After collection of the introductory letter from the department the researcher was introduced to the participants of the study who are mostly farmers. The researcher later liaise with head of the farmers with help of the extension agents were they facilitated access to the registered farmers.

The researcher employed research assistants in reaching the respondents.

### **3.7Method of Data Analysis**

The data were analyzed by employing descriptive statistics involving frequency count, and percentage.

## CHAPTER FOUR

### DATA ANALYSIS RESULTS AND DISCUSSION

This chapter presents the results of the data gathered from the field for this study. The section is divided into the following sub-headings: questionnaire return analysis, answering the research questions, a summary of major research findings and a discussion of major research findings

#### 4.1 Data Analysis

A total number of Three hundred and seventy questionnaires were administered with the aid of three research assistants, who are trained by the researcher on how to collect the questionnaire at the end of completion. Out of these questionnaires, 365 were returned.

**Table 3: Percentage of Returned Questionnaires from the Study Area**

Study Area	Number of administered questionnaire	Number of returned questionnaire	Percentage of returned questionnaire (%)
Dambam	243	240	65.8%
Dagauda	75	74	20.3%
Jalam	52	51	13.9%
<b>Total</b>	<b>370</b>	<b>365</b>	<b>100%</b>

*Source: Fieldwork, 2018*

Data in Table 2 presents the questionnaires administered for this study. In Dambam, 243 were distributed and 240 (65.8%) were returned. Also, in Dagauda, 75 questionnaires were given out to farmers, but 74 (20.3%) were retrieved, while in Jalam, 52 were distributed and 51 (13.9%) received. This implies that the higher the number of farmers in the study area, the higher the number of lost or un-retrieved questionnaires.



## 4.2 Analysis and interpretation of Research Questions

This section of the report provides answers to all five questions raised in this study one after the other as follows:

**Research Question One:** *What are the extension services available to farmers in Dambam Local Government Area?*

**Table 4: Extension services available to farmers in Dambam Local Government Area of Bauchi State**

S/N	Item Statement	Responses Frequency					Percentage (%)					Remark
		SA (4)	A (3)	SD (2)	D (1)	Total	SA (4)	A (3)	SD (2)	D (1)	Total	
1.	There are agricultural extension services in my area.	100	108	52	105	365	27.4	29.6	14.2	28.8	100	Agreed
2.	There is adequate agricultural extension agent providing services to farmers in my area.	125	211	22	7	365	34.2	57.8	6.03	1.92	100	Agreed
3.	Agricultural extension agents have been giving farmers different types of training in my community.	80	136	116	33	365	21.9	37.3	31.8	9.1	100	Agreed

Source: Field work 2018

Table 3 revealed frequency and percentage of responses on extension services deliveries available to farmers in Dambam Local Government Area of Bauchi State. It is clear from the table 3 that all the three item statements raised were unanimously agreed upon by the farmers due to the fact that the percentage of respondent on each of the items statements is more than half (50%). Farmers in the study area agreed that there are Agricultural Extension Services with agreed responses of 208 representing 57% of respondents; Agricultural Extension Agents have been giving farmers different types of training with agreed responses of 336 connoting 92% of respondents; and there are adequate Agricultural Extension Agents providing services to farmers with agreed responses of 216 representing 59.2% of respondents. Therefore, it can

be concluded that Agricultural Extension Service Agents are available in the area of the study, i.e. Dambam, Dagauda and Jalam.

**Research Question Two:** *What are the frequency of extension services delivery visit to farmers in Dambam Local Government Area of Bauchi State?*

**Table 5: Frequency of extension services visit to farmers**

S/N	Item Statement	Responses Frequency					Percentage (%)					Remark
		SA (4)	A (3)	SD (2)	D (1)	Total	SA (4)	A (3)	SD (2)	D (1)	Total	
1.	Agricultural Extension agents visit this community on weekly basis	71	93	164	37	365	19.5	25.5	44.9	10.1	100	Disagreed
2.	Agricultural Extension agents do visit this community on during the rainy season only.	147	158	48	12	365	40.3	43.3	13.2	3.3	100	Agreed
3.	Agricultural Extension agents visit this community on monthly basis	1	25	170	169	365	0.3	6.9	46.6	46.3	100	Disagreed
4.	Agricultural Extension agents visit this community dry season only.	167	144	42	12	365	45.8	39.6	11.5	3.3	100	Agreed
5.	I do have access to extension agent whenever they in the community at least twice day	0	17	131	217	365	0	4.7	35.9	59.5	100	Disagreed

Source: Field work 2018

Data in Table 4 presents frequency and percentage of responses on frequencies of Agricultural extension agents' visitation to farmers in the study area. It is obvious that out of the five item statements raised to address this, two were unanimously agreed upon by the farmers due to the fact that the frequency and percentage of agreed responses are more than half of responses, while three item statements were disagreed upon because frequency and percentage of responses of disagreed responses are more than half, i.e. 50%. Farmers in the study area agreed that Agricultural Extension Agents do visit their communities during the

rainy season only with agreed responses of 305 connoting 83.6% of responses and during the dry season with agreed responses of 311 representing 85.2% of responses. However, farmers disagreed on visitations of Agricultural Extension Agents on weekly basis which carried 201 (55.1%) disagreed responses; at least twice a day with high disagreed responses of 348 (95.3%), on the monthly basis had total disagreed responses of 339 connoting 92.9%. Therefore, it can be concluded that Agricultural Extension Service visit the study areas only during the rainy and dry seasons.

**Research Question Three:** *What are the methods of teaching used for extension service delivery in Dambam Local Government Area of Bauchi State?*

**Table 6: Methods of teaching used for extension service delivery**

S/N	Item Statement	Responses Frequency					Percentage (%)					Remark
		SA (4)	A (3)	SD (2)	D (1)	Total	SA (4)	A (3)	SD (2)	D (1)	Total	
1.	Agricultural Extension agents visit house to house to give enlighten to farmers on farming system.	125	154	53	33	365	34.2	42.2	14.5	9.04	100	Agreed
2.	Agricultural Extension agents adopt individual method of training/enlightens to farmers on farming system.	155	106	15	89	365	42.5	29	4.11	24.4	100	Agreed
3.	Agricultural Extension agents use group method to train farmers on farming system.	188	129	9	39	365	51.5	35.3	2.47	10.7	100	Agreed
4.	Agricultural Extension agents adopt mass / community meeting method to train farmers on farming system.	198	130	0	37	365	54.2	35.6	0	10.1	100	Agreed
5.	Agricultural Extension agents come to farm/field visit to train farmers.	194	122	13	36	365	53.2	33.4	3.56	9.86	100	Agreed

Source: Field work 2018

Table 5 depicts frequency and percentage of responses on techniques of information dissemination adopted by the Agricultural Extension Agents in passing information to farmers in the study area. It is shown from table 5 that all the five item statements raised

were unanimously agreed upon by the farmers due to the fact that the agreed responses frequency and percentage are more than half. Farmers in the study area agreed that Agricultural Extension Agents adopt group method of training to train farmers on farming system with agreed responses of 279 equivalent to 76.4% of respondents; individual method of training had agreed responses of 261 connoting 71.5% of respondents; group method had agreed responses of 317 representing 86.9% of respondents; mass/community meeting method had agreed responses of 328 which is equivalent to 89.9% and visitation to farm field carried agreed responses of 316 representing 86.6% of respondents. In essence, it can be concluded that Agricultural Extension Agents adopted those five techniques, demonstration, field visit, group meeting, individual meeting and farm and hommeting in disseminating information to farmers in the area of the study, i.e. Dambam, Dagauda and Jalam.

**Research Question Four:** *What are the impacts of Agricultural Extension Services delivery on farming productivity in Dambam Local Government Area of Bauchi State?*

**Table 7: Impact of Extension Services on farmers' productivity**

S/ N	Item Statement	Responses Frequency					Percentage (%)					Remark
		SA (4)	A (3)	SD (2)	D (1)	Total	SA (4)	A (3)	SD (2)	D (1)	Total	
1.	Presence of Agricultural extension agents aid in getting loan/credits as source of income for farming activities.	171	78	68	48	365	46.8	21.4	18.6	13.2	100	Agreed
2.	Through Agricultural extension agents, I got farm input like seedlings, fertilizers, etc.	126	135	54	50	365	34.5	37	14.8	13.7	100	Agreed
3.	Regular contacts with extension services increase farm output/products.	152	145	48	20	365	41.6	39.7	13.2	5.48	100	Agreed
4.	Different methods or skills acquired on seedlings planting, fertilization application, etc, from an extension agents help to improve on my farm products.	142	163	38	22	365	38.9	44.7	10.4	6.03	100	Agreed
5.	I personally satisfy with the method of information dissemination adopted by extension service agents.	110	137	79	39	365	30.1	37.5	21.6	10.7	100	Agreed

Source: Field work 2018

Table 6 shows the frequency and percentage of responses on the Impacts of Agricultural Extension Services on farming productivity in the study area. It is obvious from table 6 that all the five item statements raised were unanimously agreed upon by the farmers because the agreed responses ratings are higher than the disagreed responses. Farmers in the study area agreed that presence of Agricultural Extension Agents assists in getting loan/credits as source of income for farming activities with agreed responses of 249 equivalent to 68.2%; getting of

farm input like seedlings, fertilizers, etc, with agreed responses of 261 which is equivalent to 71.5% of the responses; regular contact with extension services increases farm output/products which had agreed responses of 297 connoting 81.3% of responses; different methods or skills acquired on seedlings planting, fertilization application, etc, from an extension agents help to improve farm products had agreed responses of 305 representing 83.6% of responses; and lastly farmers agreed on method of information dissemination adopted by extension service agents with agreed responses of 247 equivalent to 67.7% respondents. Therefore, it can be inferred here that agricultural extension services has great impacts in boosting agricultural activities and production in the area of study i.e. Dambam, Dagauda and Jalam.

**Research Question Five:** *What are the problems of agricultural extension services delivery in Dambam Local Government Area of Bauchi State?*

**Table 8: problems Facing extension services delivery**

S/N	Item Statement	Responses Frequency					Percentage (%)					Remark
		SA (4)	A (3)	SD (2)	D (1)	Total	SA (4)	A (3)	SD (2)	D (1)	Total	
1.	Extension agents are faced with the problem irregular salaries and allowances payments.	80	146	90	49	365	21.9	40	24.7	13.4	100	Agreed
2.	Lack of transport facilities hindered extension service agents to reach some villages.	134	140	67	24	365	36.7	38.4	18.4	6.58	100	Agreed
3.	Some of extension services agent lack knowledge of subject matter.	80	174	65	46	365	21.9	47.7	17.8	12.6	100	Agreed
4.	Non-availability to mobile telecommunication in some area to communicate the state headquarters when arises.	0	81	184	100	365	0	22.2	50.4	27.4	100	Disagreed

Source: Field work 2018

Table 7 presented the frequency and percentage of responses on challenges of Agricultural Extension Services on Agricultural Productivity in the study area. It is obvious that out of four item statements formulated to address this, three were unanimously agreed upon by the farmers due to the fact that the agreed response are greater 50% of the responses. Farmers in the study area disagreed that non-availability of mobile telecommunication service in some areas to communicate with disagreed responses of 284 equivalent to 77.8% indicating that there is mobile telecommunication devices in the study area to communicate agricultural agents; Extension Agents are faced with the problem of irregular salaries and allowances payments with mean responses of 226 connoting 61.9% of respondents; lack of transport facilities hindered Extension Service agents to reach some villages with agreed responses of 274 equivalent to 75.1% of respondents. However, farmers agreed that some of Extension Services agents lack knowledge of the subject matter which has mean responses of 254

representing 69.6% of respondents. Therefore, it can be concluded from the foregoing that challenges of Agricultural Extension Services are non-availability of telecommunication to some villages, problem of irregular salaries, allowances payments and lack of transport facilities and inadequate knowledge of subject matters on the part of some Agricultural Extension Agents.

### **4.3 Summary of Findings**

This research reveals the following:

- (i) Extension services are available for farmers in Dambam Local Government Area of Bauchi State.
- (ii) The frequency of the extension visit to farmers were mainly during rainy and dry season.
- (iii) The method of delivery of extension services to farmers were through house to house method, individual method, group method, community meeting and field visitation.
- (iv) The Impact of agricultural extension service delivery on farmers productivity were in terms of farmers getting loan/credity facility, farm inputs and increased outputs.
- (v) The problem facing extension services delivery were irregular payemtn of the entitlements of extension agents, lack of eough vehicle for transportation, lack of sound mastery of the subject matter and poor network services.

### **4.4 Discussionsof findings**

The findings of the analysis revealed that extension services are available for farmers in Danbam Local Government Area, which help toprovided to farmerstraining and exposing them to proven agricultural technologies that develop their reproduction efficiency. This is in line with the broader with impact of Agricultural Extension projects goals in the country. According to the Programme's Annual Report (2001). The major objectives of the Extension Services Delivery in the research area is to mobilize farmers to raise the crop management



skills of the front-line extension staff and small-holder farmers in order to increase crop production and productivity. The finding has clearly shown the extension services commitment to providing training to both farmers and extension workers in better production technology for maize, wheat and sorghum, which are the principal food crops grown by the rural farmers in the area of this study. Some of the areas upon which training was given include the use of improved seed varieties, skills on farm management, skills on agro-processing and post-harvest technology fertilizer application, plant and row spacing, seed dressing/selection, skills in the use of chemicals (herbicides and insecticides) made known to participating farmers. Other technologies like improved farm storage, credit services and inputs sourcing and many other productive technologies for growing maize, rice, wheat and sorghum were demonstrated by means of establishing crop production demonstration plots. This is where both the Extension Agents and farmers learnt more productive techniques that enhanced the rural farmers' production, according to the report of a worldwide survey conducted by the Food and Agricultural Organization (FAO), which revealed that about 81% of the extension work around the world is carried out through a Ministry or Department of Agriculture (Swanson, et al 1990) Globally, some 600,000 Extension Workers are engaged in the provision of agricultural information to farmers of which 95% is carried out by public extension (Rivera and Lary, 1997). Likewise, in the Nigeria context, Agricultural Extension Services are provided free of charge by the government through the Ministry of Agriculture (MOA) and Special Agricultural Development Schemes (SADS)

The frequency of extension visit to farmers were mainly during the rainy and dry season, majority of the farmers agreed that the extension services visit them in their communities during the rainy and dry seasons. In Nigeria, they work mainly with and through the Agricultural Development Projects (ADPs) established in participating State and Zonal

Coordinators and Extension Agents (EAs) to implement jointly planned field programmes SG2000-Nigeria supplements the in-service training of ADP staff that, in turn, provides on-the-ground training to participating farmers to ensure successful technology transfer, while assisting them in obtaining inputs and solving day-to-day problems affecting food productivity. The program manager emphasized that the establishment of demonstration plots in the community is the work of Extension Agents who enlist farmers (both men and women) who agree to provide land and labour for effective implementation of the technology options.

Based on the findings of the study, it could be understood that Extension Agents have exposed rural farmers to the proven agricultural technologies that develop their production efficiency, as earlier stated in the literature review. The activities are carried out through the strategy adopted for Sassakawa Global 2000's project that agricultural technology transfer is farmer participatory through farmer learning platform at the community level. The activities, as disclosed by majority of the facilitators, includes training farmers on the use of improved seed varieties and inputs (fertilizer, chemicals and other implements), training on the use of chemicals (herbicides and insecticides) and pest control. Other areas upon which training was given include farm management, agro-processing and post-harvest technologies.

Supe, (2004) also affirmed that Extension Services are the way of providing services to people about Agricultural Industry, Home Science Dairy, Veterinary Science and Public Health extension services scope cover the following: -

- i. Increasing efficiency in agricultural production
- ii. Increasing efficiency in marketing, distribution and utilization of agricultural input and output
- iii. Proper management of the farm land and home

Similarly, the study found that the major operational activities of the Extension Services in Dambam were technology exposition (demonstration); training on farm management and crop preservation; training on the use of improved seed varieties and inputs [and post-harvest and agro-processing technologies. The introduction and promotion of productivity, enhancing food crop production has been the heart of the Extension Services through Agricultural programs since its inception in 1986 by the Extension Services Progress Report (2010:7) Crop management training, heavily field-centred, is normally offered to extension subject matter specialists, frontline Extension Officers, community-based facilitators, smallholder farmers and other stakeholders, such as input dealers and seed producers for Farmers, Extension Officers and community-based facilitators. Training is provided at the beginning, in the middle and at the end of the cropping season. Training is also provided to members of farmers' organizations. (Extension Services Progress Report, 2010:8). Technology option plots and women assisted demonstrations serve as the primary focal point for community and grouped-based agronomic training and technology evaluation, technology option plots are used to introduce technological innovations to the larger community and serve as sites for community-based field days. Many farmers who participated in the farmer learning platform training and field days will then experiment with the demonstrated new technology options on their own land and at their own expense before making a final decision to adopt and scale up production.

The methods of delivery of extension services to farmers were through house to house methods of delivery of extension services to farmers were throughout visitations, the findings have also clearly shown that majority of the farmers agreed that extension agents adopt group methods of training to train them in the farming system. Having preferences to group method of this is the belief of extension agents that the group method of teaching enables them to

learn more as new ideas, and experiences could easily be discussed and shared among farmers. This confirms the view of Anthony, O.A (2007), who stated that the group method in extension services delivery is a strategy based on the assumption that with the membership of the individual a certain group he/her will respond to the pressure and opinion of the group and therefore, adopt the changes in farming operations. This strategy uses generally meeting group discussion exhibited and conducted toward field days and method demonstration. And also the farmers learnt about the use of improved seeds varieties, farm management, fertilizer application, plant and row spacing, seed dressing and selection and the correct use of herbicides and insecticides, which are the major technological options that could rapidly promote the productivity of the rural farmers. Moreover, the correct application of these technologies increases the income of the participating farmers as well the net annual income after the introduction of the programme. It is a testimony of the impact of the programme during the researcher's interview session with the zonal coordinator of the programme. The officer disclosed that all the training sessions organized for extension workers and participating farmers were supported by the SASSAKAWA Global (2000). It is through this participatory process that both farmers and Extension Agents learnt together the value of crop husbandry (land preparation, planting the appropriate improved seed varieties, the application of fertilizer on time and precise doses, and weeding and harvesting at the right time). Indeed, the acquisition of these technologies has been a great treasure to farming enterprises in the study area.

From the responses of the sample concerning follow up visits by the Extension Agent, which was also good in the study area, it is also a very important factor. In adopting new Agricultural Technology and the delivery of new ideas, it is expected that farmers, who are in

contact with extension visits become more inclined to adopt the new methods of the teaching of the extension services. This conforms with Paulson and Spencer (1991).

The impact of agricultural extension service delivery on farmers productivity were in terms of farmers getting loan/credit facility, farm inputs and increased outputs. Furthermore, the study shows that majority of the farmers agreed that they derived benefits from the extension services. They got farm inputs from the agent like chemicals, fertilizers, seedlings, sources of loan/credit for farming activities and different methods or skills acquired on planting, fertilizer application. However, extension agents help to improve farming productivity. They stated that the role of Agricultural Extension Activities among household is very important in increasing farming production and improved seed variety. In responding to this issue, the state coordinators of the programme expressed grief that rural farmers are always resistant to change but ready to accept new method of delivery. The Extension Agents reported that it took us longer time before the participating farmers agreed with the sowing and ridges spacing techniques even the issue of expected yield per hectare was doubted by most farmers who participated during demonstration at the community learning platform.”

Finally, the problems facing extension service delivery were irregular payment of the entitlements of extension agents, lack of enough vehicles for transportation, lack of sound mastery of the subject matter and poor network services. Farmers agreed that extension agents have problems, such as lack of mobility, irregular salaries and allowances, transportation facilities, late delivery of inputs, the attitude of extension services and lack of adequate facilities.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

This chapter present summary of the study, conclusion based on the research and recommendations as they relate to the study.

#### **5.1 Summary**

This study evaluated the Impact of Agricultural Extension Service delivery on farmer productivity in Dambam Local Government Area of Bauchi State. The study provided a detailed background of Agricultural Extension Services in Nigeria and the role played by Non-Governmental Organizations in developing agricultural enterprises in the country. Chapter one of this study contains the Background to the study, is the process of conveying the beneficial information to the rural people. Statement of the problem, the training provide for the purpose of upgrading the system of farming, Objectives of the study, to identify the extension service delivery available to farmers, to identify the frequency of extension services delivery available to farmers, to determine the method of teaching used by extension service delivery , to identify the problems facing agricultural extension service delivery. Research questions, what are the extension delivery available to farmers in Dambam Local Government Area Of Bauchi, what are the frequency visit of extension service delivery, what are the method of teaching used by extension service delivery, what are the problems face by agricultural extension service delivery in Dambam Local Government Area of Bauchi State Significance of the study, is the study significant to farmers, researchers and students, Scope and Delimitation, the study covered Dambam, Local Government Area of Bauchi State of the study and the Operational definition of key terms. Extension delivery means to communicate research finding and improve agricultural practice to farmers.

Chapter two reviewed some important related literature, the theoretical framework of the study is based on modern extension of Adam Smith's Human Capital Theory review which examine the conceptual definition of extension education, the program was conducted outside the school to describe as extension education, extension service delivery is that working with rural people to provide family knowledge and skills, extension agent and agricultural development, agriculture dominate the economy both for nation progress, the roles of agricultural extension services focus on overall livelihood enhancing in order to encourage rural people, extension teaching method is the tool in the hand of extension in transferring new knowledge problems of agricultural extension lack of transport facilities, review of imperial study, summary of literature review and uniqueness of the study.

Chapter three presents the Research Work this include Research Design, adopted survey research Population of the study, a total number of (10656) Sample size (370) was use and Sampling procedure, the study was proportionate random sampling, Data collection Instruments, questionnaire. Validity were subjected to face content validity and Reliability was determined using test and re-test method , data analysis using descriptive statistic involving frequency count and percentage count.

Chapter four presents the results and discussion for the study. The research questions for both the questionnaire and interview schedule with programme managers and extension agents were successfully answered and the responses were analyzed using descriptive statistics. First hand and qualitative information were also generated from the responses of farmers and answering the research questions.

Chapter five finally presents the summary, conclusion and recommendation. Extension survives should make more effort in advising rural farmers for improve production.

## **5.2 Conclusion**

The finding of the study shows that there is agricultural extension services delivery in Dambam Local Government Area of Bauchi State the extension service delivery visit to the farmers in the study area during the raining season and dry season, the finding shows that extension services used the various method to teach farmers in the study area, extension services farmers drive benefits from the extension services on farming productivities such as crops and animals output by the use of improve variety of seed animals breed modern machines all these reSSources are the benefit drive from the exteionservise drive from the extension services face some problems such as transport facilities mobile telecommunication lack of allowances and made input delivery in the study area.

## **5.3 Recommendations**

Based on the findings of this study the researcher wishes to offer the following recommendations:

1. Government should ensure that the scope of extension services available for farmers are comprehensive enough to cover their ever increasing needs.
2. Extension agents should maintain the frequency of visits to farmers,
3. Extension agent should apply methods of extension services delivery based on the prevailing condition of farmers.
4. The extension agents should sustain the positive impact of their services on farmers.
5. Government should ensure regular payment of extension agetns entailment and provision of adequate working facilities



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**APPENDIX A**  
**FARMERS' QUESTIONNAIRES**

**Department of Adult Education and Community Services Bayero University Kano.**

Dear Respondents,

I am a postgraduate student of the Department of Adult Education and Community Service of Bayero University, Kano. My area of research is “The Impact of Agricultural Extension Practices on Farmers’ Productivity in Dambam Local Government Area of Bauchi State

Your cooperation is highly solicited to help complete this questionnaire.

For any information, please fill the appropriate space provided.

Thank you for your kind cooperation

Yours sincerely,

GamboYaron Baba

**SECTION A: PERSONNEL INFORMATION**

1. Name of the Farmer .....
2. Name of the Village .....
3. Sex : Male ☐ Female ☐
4. Marital Status: Married ☐ Single ☐ Divorced ☐ Widow ☐
5. Educational Status: Never been to school ☐ Qur'anic education ☐ Adult education ☐  
Primary School ☐ Secondary School ☐ Tertiary education ☐

**SECTION B: FARMERS' RATING OF AGRICULTURAL EXTENSION SERVICES**

**Instruction:** Please tick (✓) the appropriate option as apply to in the following statements below:

Take note of the following rating grades:

Strongly Agree (SA) = 4

Agree (A) = 3

Strongly Disagree = 2

Disagree = 1

S/N	Item Statement	SA (4)	A (3)	SD (2)	D (1)
	<b>AVAILABILITY OF AGRICULTURAL EXTENSION SERVICE S</b>				
6	There are agricultural extension services in my area.				
7	There are adequate agricultural extension agents providing services to farmers in my area.				
8	Agricultural extension agents have been giving farmers different types of training in my community.				
	<b>FREQUENCY OF AGRICULTURAL EXTENSION AGENTS VISIT TO FARMERS</b>				
7	Agricultural Extension agents visit this community on weekly basis				
8	Agricultural Extension agents do visit this community on during the rainy season only.				
9	Agricultural Extension agents visit this community on monthly basis				
10	Agricultural Extension agents visit this community dry season only.				
11	I do have access to extension agent whenever they in the community at least twice day				
12	Agricultural Extension agents visit house to house to give enlightenment to farmers on farming system.				
	<b>METHODS OF TRAINING OR INFORMATION DISSEMINATION ADOPTED BY AGRICULTURAL EXTENSION AGENTS</b>				
13	Agricultural Extension agents adopt individual method of training/enlightenment to farmers on farming system.				

14	Agricultural Extension agents use group method to train farmers on farming system.				
15	Agricultural Extension agents adopt mass / community meeting method to train farmers on farming system.				
16	Agricultural Extension agents come to farm/field visit to train farmers.				
	<b>IMPACTS OF AGRICULTURAL EXTENSION SERVICES TO FARMERS</b>				
17	Presence of Agricultural extension agent's aid in getting loan/credits as source of income for farming activities.				
18	Through Agricultural extension agents, I got farm input like seedlings, fertilizers, etc.				
19	Regular contact with extension services increase farm output/products.				
20	Different methods or skills acquired on seedlings planting, fertilization application, etc, from an extension agents help to improve on my farm products.				
21	I personally satisfy with the method of information dissemination adopted by extension service agents.				
	<b>CHALLENGES OF AGRICULTURE EXTENSION SERVICES</b>				
22	Extension agents are faced with the problem irregular salaries and allowances payments.				
23	Lack of transport facilities hindered extension service agents to reach some villages.				
24	Some of extension services agent lack knowledge of subject matter.				
25	Non-availability to mobile telecommunication in some area to communicate the state headquarters when arises.				

## APPENDIX B: SPSS OUTPUT

### Descriptive Statistics

	N	Mean	Std. Deviation
There is agricultural extension services in my area.	365	3.24	.690
There is adequate agricultural extension agents providing services to farmers in my area.	365	3.11	.696
Agricultural extension agents have been giving farmers different types of training in my community.	365	3.23	.618
Valid N (listwise)	365		

### Descriptive Statistics

	N	Mean	Std. Deviation
Agricultural Extension agents visit this community on weekly basis	365	1.61	.626
Agricultural Extension agents do visit this community on during the rainy season only.	365	3.21	.791
Agricultural Extension agents visit this community on monthly basis	365	1.45	.585
Agricultural Extension agents visit this community dry season only.	365	3.28	.793
I do have access to extension agent whenever they in the community at least twice day	365	1.59	.499
Valid N (listwise)	365		

### Descriptive Statistics

	N	Mean	Std. Deviation
Agricultural Extension agents visit house to house to give enlighten to farmers on farming system.	365	2.90	1.198
Agricultural Extension agents adopt individual method of training/enlightenment to farmers on farming system.	365	3.28	.945
Agricultural Extension agents use group method to train farmers on farming system.	365	3.34	.914
Agricultural Extension agents adopt mass / community meeting method to train farmers on farming system.	365	3.30	.935
Agricultural Extension agents come to farm/field visit to train farmers.	365	3.02	1.088
Valid N (listwise)	365		

### Descriptive Statistics

	N	Mean	Std. Deviation
Presence of Agricultural extension agents aid in getting loan/credits as source of income for farming activities.	365	2.92	1.019
Through Agricultural extension agents, I got farm input like seedlings, fertilizers, etc.	365	3.18	.859
Regular contact with extension services increase farm output/products.	365	3.16	.842
Different methods or skills acquired on seedlings planting, fertilization application, etc, from an extension agents help to improve on my farm products.	365	2.87	.965
I personally satisfy with the method of information dissemination adopted by extension service agents.	365	2.70	.958
Valid N (listwise)	365		

### Descriptive Statistics

	N	Mean	Std. Deviation
Extension agents are faced with the problem irregular salaries and allowances payments.	365	3.05	.902
Lack of transport facilities hindered extension service agents to reach some villages.	365	2.79	.927
Some of extension services agent lack knowledge of subject matter.	365	1.95	.703
Non-availability to mobile telecommunication in some area to communicate the state headquarters when arises.	365	3.13	.997
Valid N (listwise)	365		

### APPENDIX C: SPSS CODING

CLUSTER	Numeric	8	0	Clusters from Damabam axis	{1, Dambam Area}...	None	6	Right	Scale
AEA1	Numeric	8	0	There is agricultural extension services in my area.	{1, Disagrred}...	None	4	Right	Scale
AEA2	Numeric	8	0	There is adequate agricultural extension agents providing services to farmers in my area.	{1, Disagrred}...	None	4	Right	Scale
AEA3	Numeric	8	0	Agricultural extension agents have been giving farmers different types of training in my community.	{1, Disagrred}...	None	4	Right	Scale
AFV1	Numeric	8	0	Agricultural Extension agents visit this community on weekly basis	{1, Disagrred}...	None	4	Right	Scale
AFV2	Numeric	8	0	Agricultural Extension agents do visit this community on during the rainy season only.	None	None	4	Right	Scale
AFV3	Numeric	8	0	Agricultural Extension agents visit this community on monthly basis	None	None	4	Right	Scale
AFV4	Numeric	8	0	Agricultural Extension agents visit this community dry season only.	None	None	4	Right	Scale
AFV5	Numeric	8	0	I do have access to extension agent whenever they in the community at least twice day	None	None	4	Right	Scale
AEID1	Numeric	8	0	Agricultural Extension agents visit house to house to give enlightment to farmers on farming system.	None	None	4	Right	Scale
AEID2	Numeric	8	0	Agricultural Extension agents adopt individual method of training/enlightment to farmers on farming system.	None	None	4	Right	Scale
AEID3	Numeric	8	0	Agricultural Exxtension agents use group method to train farmers on farming system.	None	None	4	Right	Scale
AEID4	Numeric	8	0	Agricultural Exxtension agents adopt mass / community meeting method to train farmers on farming system.	None	None	4	Right	Scale
AEID5	Numeric	8	0	Agricultural Exxtension agents come to farm/field visit to train farmers.	None	None	4	Right	Scale
IAEA1	Numeric	8	0	Presence of Agricultural extension agents aid in getiing loan/credits as source of incoefor farming activities.	None	None	4	Right	Scale



IAEA2	Numeric	8	0	Through Agricultural extension agents, I got farm input like seedlings, fertilizers, etc.	None	None	4	Right	Scale
IAEA3	Numeric	8	0	Regular contact with extension services increase farm output/products.	{1, Disagreed}...	None	4	Right	Scale
IAEA4	Numeric	8	0	Different methods or skills acquired on seedlings planting, fertilization application, etc, from an extension agents help to improve on my farm products.	{1, Disagreed}...	None	4	Right	Scale
IAEA5	Numeric	8	0	I personally satisfy with the method of information dissemination adopted by extension service agents.	{1, Disagreed}...	None	4	Right	Scale
CAEA1	Numeric	8	0	Extension agents are faced with the problem irregular salaries and allowances payments.	{1, Disagreed}...	None	4	Right	Scale
CAEA2	Numeric	8	0	Lack of transport facilities hindered extension service agents to reach some villages.	{1, Disagreed}...	None	4	Right	Scale
CAEA3	Numeric	8	0	Some of extension services agent lack knowledge of subject matter.	{1, Disagreed}...	None	4	Right	Scale
CAEA4	Numeric	8	0	Non-availability to mobile telecommunication in some area to communicate the state headquarters when arises.	None	None	4	Right	Scale

# APPENDIX C: SPSS DATA CODING

S/N	AEA1	AEA2	AEA3	AFV1	AFV2	AFV3	AFV4	AFV5	AEID1	AEID2	AEID3	AEID4	AEID5	IAEA1	IAEA2	IAEA3	IAEA4	IAEA5	CAEA1	CAEA2	CAEA3	CAEA4
1	4	3	4	3	3	2	4	1	2	4	4	3	4	4	3	4	4	3	2	4	3	2
2	3	4	3	2	4	2	3	2	2	3	4	4	3	3	1	3	4	3	3	4	3	3
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6	3	3	3	2	3	1	4	1	4	1	1	4	4	2	4	4	3	3	3	4	3	1
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