# AN ASSESSMENT OF AGRICULTURAL EXTENSION PROGRAMME ON FARMERS OUT PUT IN YOLASOUTH LOCAL GOVERNMENT AREA ADAMAWA STATE

**BY**

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## CERTIFICATION

This is to certify that Mohammed Umar Salatu (DL/MS/04/003) carried out this research work on "An Assessment of Agriculture Extension Programme on Farmers Output in Yola South Local Government Area of Adamawa State" in partial fulfillment of the requirements for the award of Master of science (M.Sc) in Rural Development, Federal University of Technology Yola.

# APPROVAL PAGE

This thesis entitled An Assessment of Agricultural Extension Programme on Farmers in Yola South Local Government Area, Adamawa State by SALATU, Umar Muhammed meets the regulations governing the award of M.Sc Degree in Rural Development Federal University of Technology, Yola and is approved for its contribution to knowledge and literary presentation.

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# DEDICATION

This thesis is dedicated to my parents, brothers, sisters and particularly my late mother Aishatu Salatu (Ladi), my wife Zainab Mohammed, my first child Aishatu Mohammed (Late), Umar Mohammed (Shahid), Hapsat Mohammed and Mohammed Mohammed Hanif and to those who sacrificed through the years to see that I completed this study.

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## ABSTRACT

This research examined the impact of agricultural extension programme on the output of farmers in Yola South Local Government Area of Adamawa State. One hundred and eighty farmers were sampled and served with questionnaires used to collect data for the study. Simple descriptive and inferential statistical tools were used in analyzing the 168 questionnaires retrieved from the respondents. The results revealed that 77.45% of the adopters in the study area are between the age of 25-45 years old, the farmers were found to be small scale fanners with farm size ranging from 0.5-5 hectares of land. 69% of respondents had no formal educations which indicate high level of illiteracy among farmers in the study area. The study revealed about 85% of the respondents have contact with the extension agent and 24% of the contact farmers adopted the use of recommended fertilizer application, 13.65%, and 13.10% adopted the use of herbicide and planting of improve varieties respectively, while 60% of the extension staff interviewed in the study area had poor to moderately favourable attitude toward their assignment. This is due to the factors associated with the nature of their work such as lack of modern working tools and equipment, inadequate supply of inputs and lack of credit facilities to the rural farmers. Finally, the results of the research show that the output of the fanners has increased significantly as a result of regular visit to the farmers by the extension agents. Therefore, the research suggest that staff training appear to be the most important area which positive action can be taken to improve the extension services and the efficiency of farmers in the rural area.

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# CHAPTER ONE INTRODUCTION

## 1.1 Background of the Study

Agriculture is the largest and oldest industry in the world. Since 7000 B.C. farmers try to organize their natural environment and use the energy in sunlight to produce food for their family. All the people in the world depend on agriculture for their food.

The System of agricultural extension emerged over 200 years ago, with the Liberalization of the peasant farmers and people of high school movement in Denmark (Benor, 1977). But today there is scarcely a country in the world that does not have at least its own formal agricultural extension service. In the developing countries, about half of the existing agricultural extension services were set up in the 1970s and 1980s (FACU, 1994) and all the major services were run by state and supported by large and growing number of governmental organization, which can be seen as an opportunity for action in agricultural extension programmes. But private and commercial extension services remain rare. The regional department of agriculture in Nigeria, the Ministry of Agriculture and its staff have been concerned with the question of how to make extension services more effective in serving rural fanners.

With the advent of the British colonization of Nigeria, modern agriculture emerged. This period marked the beginning of direct government involvement in the development of agriculture, although, what was regarded as extension work in the early days cannot be interpreted in the modern view.

Therefore, extension is the major determining factor of success in agricultural development, if the extension component is removed or faulty, then a major link in the chain is affected and the production plan will fail. This means mat our objectives in agriculture cannot be fully realised.

That is why, governments all over the world have been influencing agriculture more and more. These efforts were made by the Government to help fanners increase their productivity by 50% through intensive extension education

on the adoption of improved practices initiated by the World Bank through ADPs, (FAO 1985).

The extension programme encourage the people in the villages to produce more food and cash crops, they help farmers by testing various crops on governmental and fanners farms. However, this effort has led to the development of high yielding varieties of crops such as maize, sorghum, rice, millet, groundnut, cowpea, bambara-nut, cassava and so on. (Ogbonna, 2004).

Experience has shown that the extent of adoption of new varieties of crop can be determined by profitability, which influence the acceptability of high yielding crops, Umal (1996), found that age, level of education, farm size and social participation of farmers in Nigeria were important to the adoption of rice, maize, cocoa, cassava and poultry improved practices. Tosi (1984), in a study in western Nigeria found that contact with extension gent was necessary in the adoption of innovation.

A number of studies have been conducted in different parts of Nigeria and elsewhere to determine the need for transforming the inputs with low productivity, to one based on modem inputs with high productivity so as to meet the rising expectation of the people. Obibuaku (1995), investigated the training needs and other personal characteristics of the extension staff, while, Uwaka (1999), studied the teaching behaviour of extension staff in two eastern states of Nigeria and elsewhere to determine the relationship between some of these agent related variables and the success of the extension work. The studies found that the Agricultural Extension programme has been a complex social system, in which many factors operate, as farmers try to learn new ways of fanning. Within this large social system the extension service is a professional system, to which the change agent belongs and the client sub-system. Each of the sub-systems may have different expectations and perception of the role of the change agents and these expectations influence strongly the activities of the change agent. Uwaka (1999) revealed that the teaching behaviour of the extension agent is in return

determined by his institutionally assigned responsibilities, his attitude towards the agency and members of the client system.

It is known that three group of antecedent variables interact to determine the outcome of any farming learning situation (Ballact, 1983). These three group variables are related to:

a. Teacher (extension worker)

b. The learner (farmer) and

c. Organizational environment (extension agency). This is described in Fig. 1.1.

The chart shows that the factors are related to the change agent, particularly his professional training, teaching behaviours, personal expectation and satisfaction with the job and his attitude to the client (farmers).

**a. The Teacher (Extension Workers) or the Change Agent (CA)**

-The change agent is a professional person who works to promote the adoption or learning of new ideas. He functions essentially as a teacher and provides the two-way communication link between his organization and clientele (Farmers). The overall effectiveness of such role depends on the interaction of factors within the two systems and the teaching behaviour of the agent himself.

**b. The Learners (Farmers)**

-Fanners are the ultimate target in any extension programme. The change agent's attitude affects not only how he teaches farmers, but also what the farmer learns, the way he learns it, the value he gives to the learning and the influence the learning has upon his life. The success of education is determined by the adoption behaviour of the rural farmers (Vener, 1986).

**c. The Organizational Agencies (Extension Agencies).**

Extension education is an informal out of school system, designed to help rural farmers to satisfy their needs and desires, hi view of the separate process involved in rural development, the success of extension programme can only be achieved within the framework of a formal organization or agricultural extension agencies such as ADPs. The transformation of rural areas found in many countries is as a result of educational standard and socio-cultural ideas of the people, as well as their economic status. Therefore, the pattern of extension programme may differ in nature, but in line with the federal government policy and the World Bank, the objectives pattern of the extension services appear to be the same. The aim is to raise agricultural productivity and improve the living standard of rural people, and it varies according to social and economic conditions of the people.

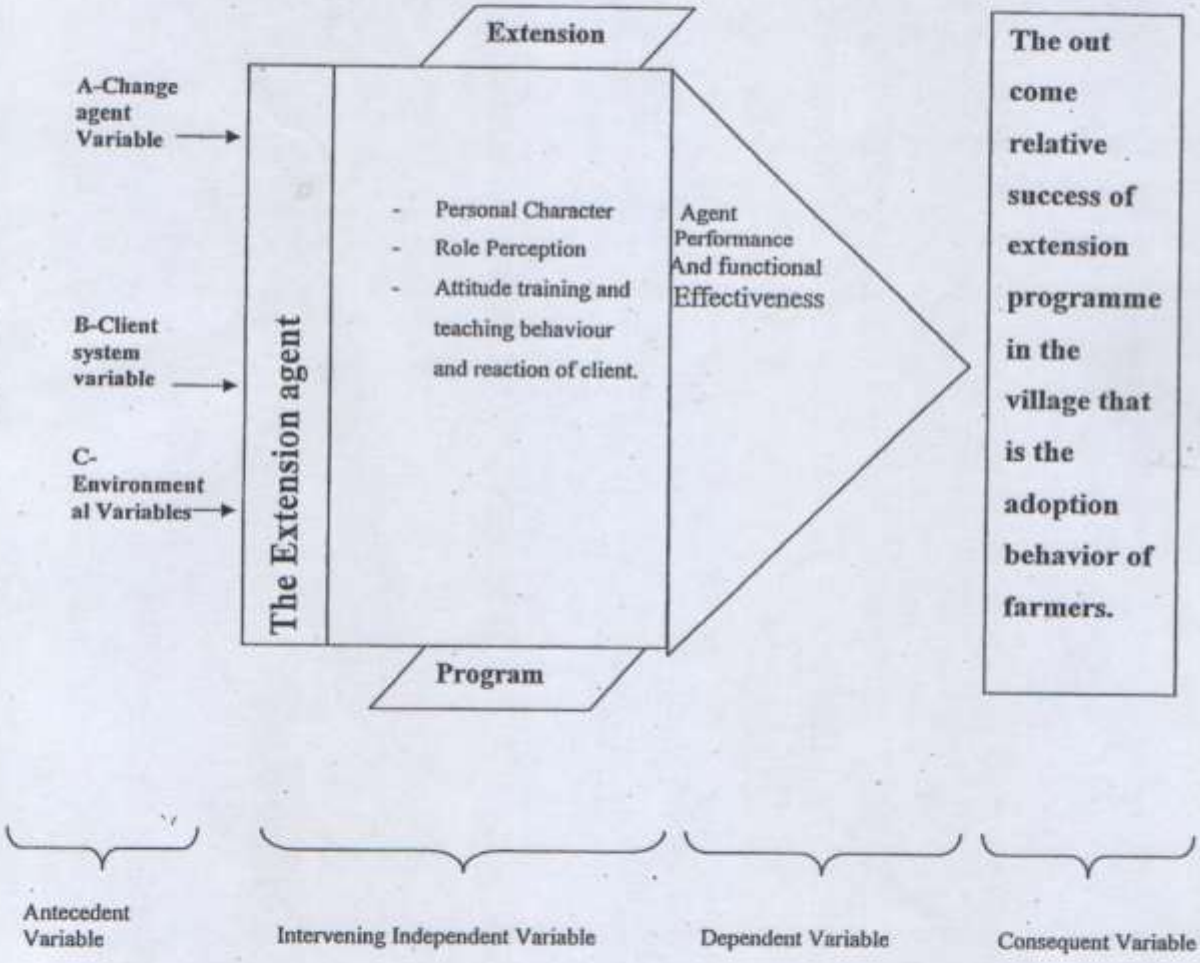


**Fig. 1.1 Extension interacting variables**

***Source: Nigerian Journal of Agricultural Extension, 1981***

## 1.2 Statement of the Problem

Increase in food demand by the ever growing population, and the extent to which agricultural extension achieves its goals, depend on many factors. Important among them are the types of farmers and their educational levels, socio-economic status, geographical location and some other variables. Although joint extension operation function satisfactorily, this does not mean that they are practicable every where, but the success of extension programme depends very much on community participations, training of farmers, group discussion and distribution of agricultural inputs and modern equipments.

Though the problem of extension services on crop production before now has been more or less availability of qualified extension management to mount machineries for effective staff performance and improve the extension development practices, today emphasis has been shifted from more available extension workers to the question of how well developed or specialized are the extension organization facing forces that are against the achievement of their goals. Despite this, there are some problems facing crop production, one of which is low productivity associated with farmers production system, these problems are:

- Inappropriate decision on how best to allocate among various crop to measure resources at their disposal.
- Inappropriate use of corresponding production Inputs and
- Inadequate familiarity with improved technologies and so on (Obi, 1981).

Several research findings have been reported on the aspect of extension programme, but the impact of extension on crop production activities has not been given adequate research attention. Hence, this research intend to critically analyze the impact of extension programme in the study area with a view to suggesting policy measures and recommend for improvement in the current extension services. However, faced with deteriorating system of agriculture in the study area over the years, low inputs and local tools and equipments are still in use, resulting in decrease in agricultural production.

Nevertheless, with the present rate of increase in the population and civilization, the means of feeding more people is becoming difficult by peasant farmers, who cannot produce enough food for their families as they are characterized by low level of

education, small farm lands, poor transportation facilities and other related factors (Field survey, 2007). Their inability to incorporate modern farming techniques due to poor finance, poor agricultural extension services and other socio-cultural factors, has been the major constraint for effective and meaningful agricultural development in the rural area.

Furthermore, the rather poor academic qualification identified with most of the extension agents could have effect on their efficiency. The minimum national Diploma qualification for extension agents as suggested by Ascon (1987),was not met by 68% of Adamawa Agricultural Development Program extension workers, (ADADP extension diary, 2001). There is need to assess the impact of agricultural extension programme introduced by ADADP, and determine the effect on the crops farmers and whether the objectives of establishing the agricultural extension in the state is achieved by improving the welfare of the state teaming population.

Therefore, this research would like to answer the following questions.

- What are the socio-economic status of the farmers in the study area?
- What are the achievements of ADADP since its inception in terms of Small Plot Adoption Techniques establishment, staff strength, inputs distribution and farmers training?
- What are the levels of adoption of farmers in the study area?
- What are the impact of extension services on the farmers output?
- What are the problems facing fanners in adopting new practices?

## 1.3 Aim and Objectives of the Study

The aim of the study is to examine the impact of agricultural extension programme on crop production in Yola South Local Government area of Adamawa State. The specific objectives include the following:

1. To identify the socio-economic characteristics of farmers in the study area.
2. To determine the profitability of farmer's business.
3. To examine the impact of extension services on the output of farmers.
4. To determine the level of adoption of improved practices by farmers in the study area.
5. To identify the constraints facing farmers in the study area.

## 1.4 Significance of the Study

It is the expectation of the researcher that the findings emanating from this study will be a valuable source of data to:

i. The Agricultural extension policy makers, ii.

The farmers and iii. The researchers

It will help the agricultural policy makers in identifying areas of priority need in the policy formulation with regards to small scale farming. The research findings will also provide avenue for the farmers to know more about the factors affecting their production activities, as well as means to express their feeling about the extension programme in rural development.

This will go along way in guiding the state, local government and other donor agencies in the agricultural sector whether to continue with the

programme as presently implemented or to change strategies so as to achieve their desired objectives.

## 1.5 The Study Area

Yola South Local Government Area, is one of the local government areas in Adamawa state out of the 21 local government areas in the State. The local government area consists of 2 districts namely, Namtari and Yola districts with about 131 primary and secondary villages. The name "Yola" was derived

from a Fulani word "Yolde" meaning upland (Emirate Council, 2003). The headquarter of Yola South Local Government area is Yola town, and is formerly a provincial headquarter of Adamawa province in the early independence in the North-eastern state of Nigeria.

Yola was founded by Modibbo Adama in 1853 as the capital of Adamawa Empire, it was transformed into the state capital of Gongola State during Murtala/Obasanjo regime in 1976. The state was further divided into Adamawa and Taraba states, during Babangida regime. Presently, Yola is comprised of Yola North and Yola South Local Government areas. The study area shares common boundaries with Yola North and Gerei in the North, Fufore in the East, Mayo - Belwa in the South and Demsa Local Government area in the West.

Geographically, Yola lies between Latitude 9°N to 12° N and Longitude 11°E to 12°E (Adebayo, 1999). (See fig 1.2). The local government area had 230, 484 people, with 22,025 households as estimated during the enumeration area demarcation (EAD) for 2006 Population and Housing Census with the total number of 107 enumeration area in the study area (NPC, 2005). Nine Thousand Seven Hundred and Thirty Nine (9,739) are farmers as reported by ADADP extension diary (ADADP, 2001). The common ethnic groups found in the study area are Verre, Fulani, Hausa, Bille, Mballi, Bata and Laka. The people of the area are excellent farmers, livestock rearers and fishermen. The local government area is made up of 11 political wards consisting of numerous villages and hamlets. The wards are Namtari, Ngurore, Yolde Pate, Mbamba, Makama A and B, Adarawo, Mbamoi, Toungo, Bako and Malkohi.

The climate of the area is marked by dry season and rainy season; it has an average temperature of 35.5°C and an annual rainfall of 13.5mm (UBRDA, 1995).

Yola South Local Government Area is also one of the prominent agricultural areas in the state, which depends solely on what small farmers produced. Crops grown include Sorghum, Maize, Rice, Cowpea, Bambaranuts,

Groundnuts, Cassava, Sweet Potatoes and Tree Crops like Mango, Guava, Banana and Cashew.

The area also has a cultural seasonal fishing festival called "Njuwa" fishing festival, which normally takes place around April of every year. During the colonial era Yola has also experienced, socio-economic progress in the field of agriculture, that is, during the peak period of Kano pyramid (in the 60s), when cotton and groundnuts were the main stay of Nigeria economy, where Yola was the collection centre located at Bajabure and Kwata formerly called Damare John -Holt.

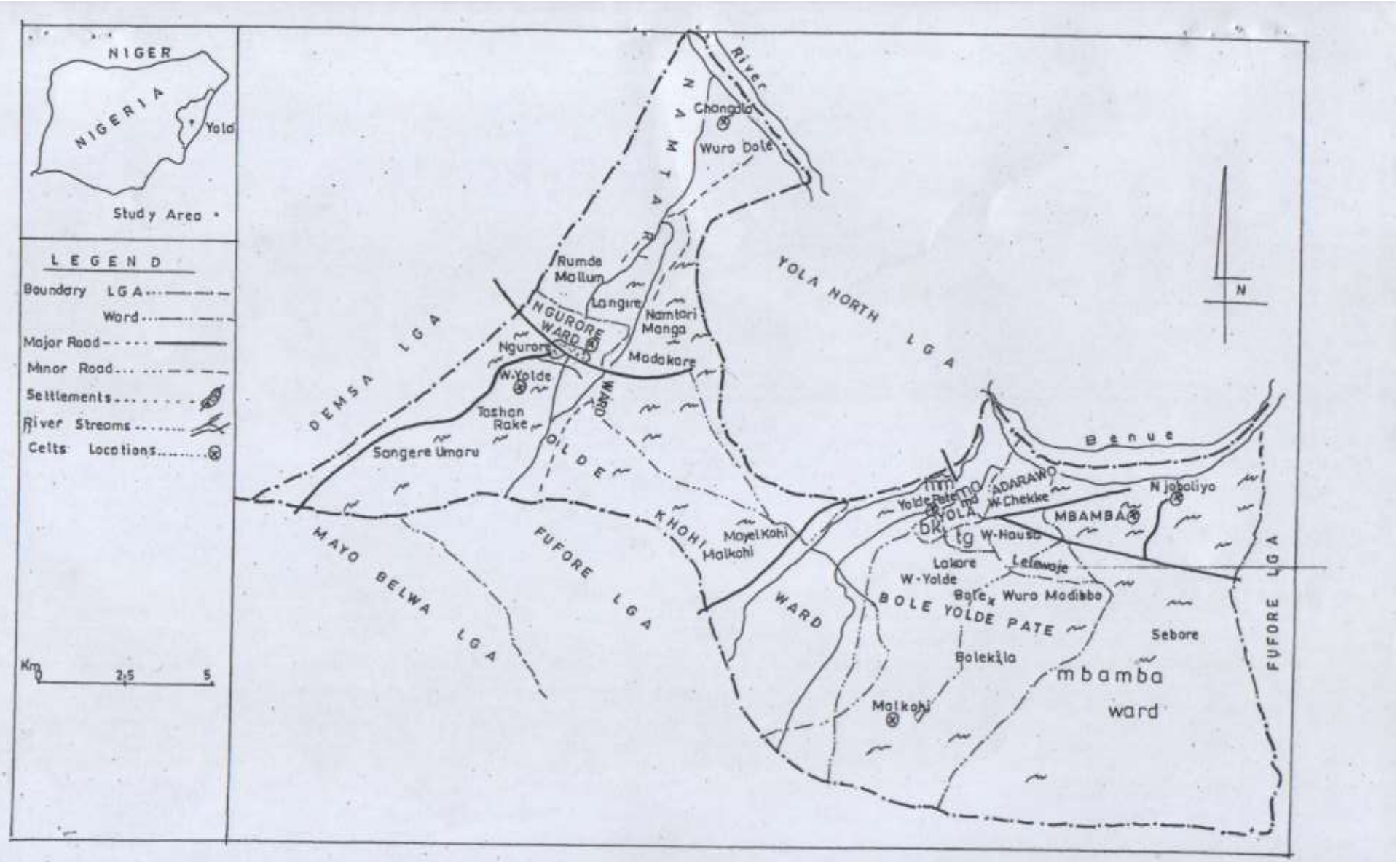


Fig 1.3 Map of Yola South Local Govt Showing Cells Locations

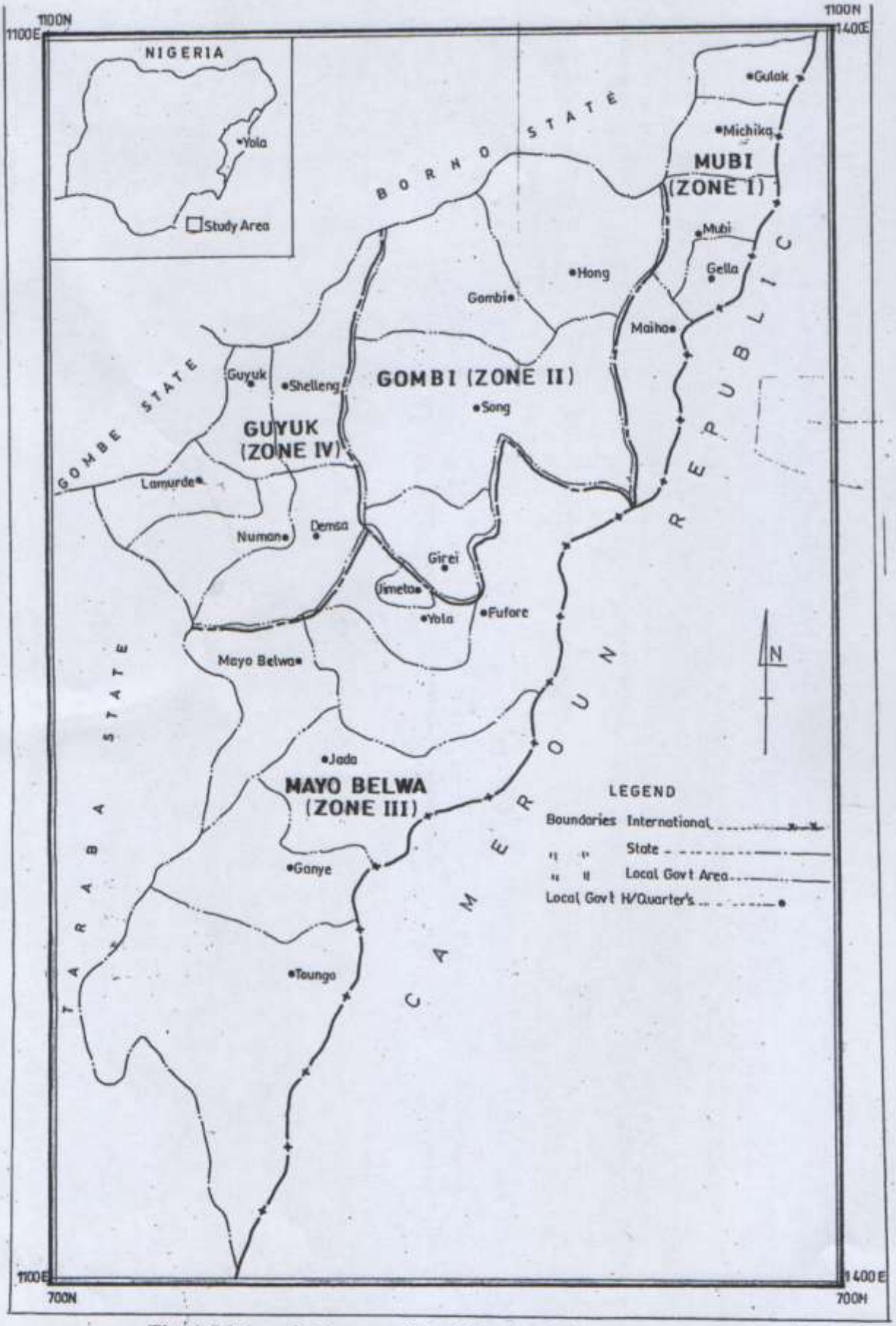


Fig. 1.3 Map of Adamawa State Showing Adamawa A.D.P. Zones

(Source: AD. A.D.P. Extension Diary, 2001

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 The Origin and the Implication of Extension Service in Rural Development

The origin of extension service and agricultural extension in rural development is as old as the department of agriculture in this country; this can be dated back to 1863, when the department of botanical research was established at Olokemejo in the then Abeokuta province (Mshelia, 2005).

In 1921, a unified department of agriculture was established for the whole country. The department concentrated its effort on experimental information and model farms were introduced to serve as demonstration farms to farmers. However, by then the extension work in the real sense of the term was not known or attempted, until 1962 when the United State Agency for International Development (USAID) of extension expert were employed by the ministry of agriculture (Tosi,1984).

Vender (1997), observed that the maximum objective of extension in agricultural sector is the provision of sufficient food for farm family members and cash crops for our industries. In scanning the various approach in community development including agricultural development, the one that appears to be recommended it self most to the need of developing countries it is what has been termed as multi-subject matter extension education, the process which places emphasis on the variety of requirement for agricultural development (William, 1988).

The key administrative and geographical unit in Yola South Local Govermnent Area is the T&V system. The extension cell otherwise called village. Which is the area covered by one extension agent directly encountered with farmers, there should be one extension agent to one cell for approximately 80 farmer out of the 800 farm families. The extension agent will work with about 80 contact farmers who will be selected by group of farmers to represent them. FACU (1994), revealed that in India the village extension workers serve 5-10

villages of about 100 villagers under a block officer.This block officer administratively gets technical direction from their respective ministries or organizations. Such staff act as advisers to villager's workers in agriculture, public health and social education.

Furthermore, the village extension agent is equipped to advice the farmers on the major problem they encountered during their farming activities. He provides free technical advices on the main aspect of their farming. (Ogbonna,2004), observed that integrated rural development could be seen as a concept for planning and executing changes in the rural areas. Accordingly, an integrated approach to rural development area consists of two elements:-

1. Integration of the development activities into one programme of action and
2. Integration of areas.

Therefore, any extension strategy for rural development should recognize the low productivity in Agriculture and work for effective mobilization of abundant land and labour with an injection of capital by governments to improve the quality of life in the rural area. Mshellia (2005), observed that every extension agent is suppose to be a "jack" of all trade and master of all. 2.2 **Process of Extension Teaching,**

Extension teaching must start at the learners (Farmers) level that is at his level of knowledge, understanding, interest and degree of readiness (Ogunsameru, 1995). That is to say the correct approach would be to start with the peasant system and try to improved the system, and if physical and economic condition permit, to aspire towards large size farmers. Really this was the approach later adopted, particularly in the northern states in the production of relatively successful cash crop, such as groundnut and cottons (Umal, 1996). This means that to succeed with farmers, new ideas must be related to what the farmers already knows and that with which is familiar.

Alhirkarya (1977), revealed that extension programme must be designed to solve today's problem. Today's problem are known, where as tomorrow's problems are not so well known and are likely to differ in scope and perhaps in

nature. Paul (1984), revealed that in the southern provinces, the main agricultural product on which extension efforts were directed was cocoa, while oil palm in the west and rubber in the east and in the mid east. The programme entailed the multiplication and distribution of improve seeds and the teaching of farm management and the processing of farm produce. But however, extension staff at this level were handicapped by being over stretched over vast areas, and were expected to contact large number of farm families, a situation which substantially limits their effectiveness.

Umal (1996), examined that extension workers suffer from poor preparation for their all -important jobs, like there counter part in other African countries, they lack adequate preparation in basic education, technical agriculture and use of extension principle and methods.

**2.3 The Nature of Extension Approach of the Ministry of Agriculture and ADPs in Nigeria.**

The traditional extension activities operating in the ministry of agriculture, generally centered around soil conservation and increase in production without stressing explicitly on the use of cash income and cash expenditure as the basis for farm management. The only aspect of extension that was emphasized in the ministry of agriculture was the maximization of the resource utilization (in this case resources were land, family labour and water), and time schedule to take advantage of the short raining season in some other parts of the country, since well designed irrigation system are yet to be available in every farming area.

World Bank (1990), revealed that the importance of rural extension programnme to rural development lies in various set of processes, which concern the rural people, the rural community should be defined their problems and accept new opportunities in order to learn new skills for improvement. According to Obi (1981), revealed that over 70% of the nation's total populace engages in agriculture. However, primitive agricultural method still dominate agricultural practice in Nigeria faced with deteriorated agricultural system, over the decades,

the federal government of Nigeria launched the agricultural Development projects (ADPs) in 1975 to assist the small scale farmers to improve their agricultural productivity. In line with World Bank Policy, the Adamawa State Government established the Adamawa Agricultural Development Programme (ADADP), initially known as Gongola integrated rural development programme (GIRDP), in 1982, with the objective of increasing the productivity of food crop, livestock as well as agro forestry practices through the small scale farmers. This being administered through the provision of adequate agricultural extension service, which aimed at improving the overall living standards of the rural populace and increased productivity. The basic goals of the ADPs is to build up a professional extension service that is capable of assisting farmers in raising income and providing appropriate support to agricultural development. For the programme to be successful, the training and visit system (T&V), was accepted to fit local conditions. However, the flexibility that enables its successful adoption is based on

a) Professionalism
b) Single line of command
c) Concentration of effort
d) Time bound work
e) Farmers orientation
f) Regular and continous teaching of extension staff and farmers and
g) Two- way linkages between extension, research and the farmers.
(FACU, 1994)

Based on this effort, Adamawa Agricultural programme extension administration structure was divided into four (4) Zones in the State for effective mobilization and coordination.

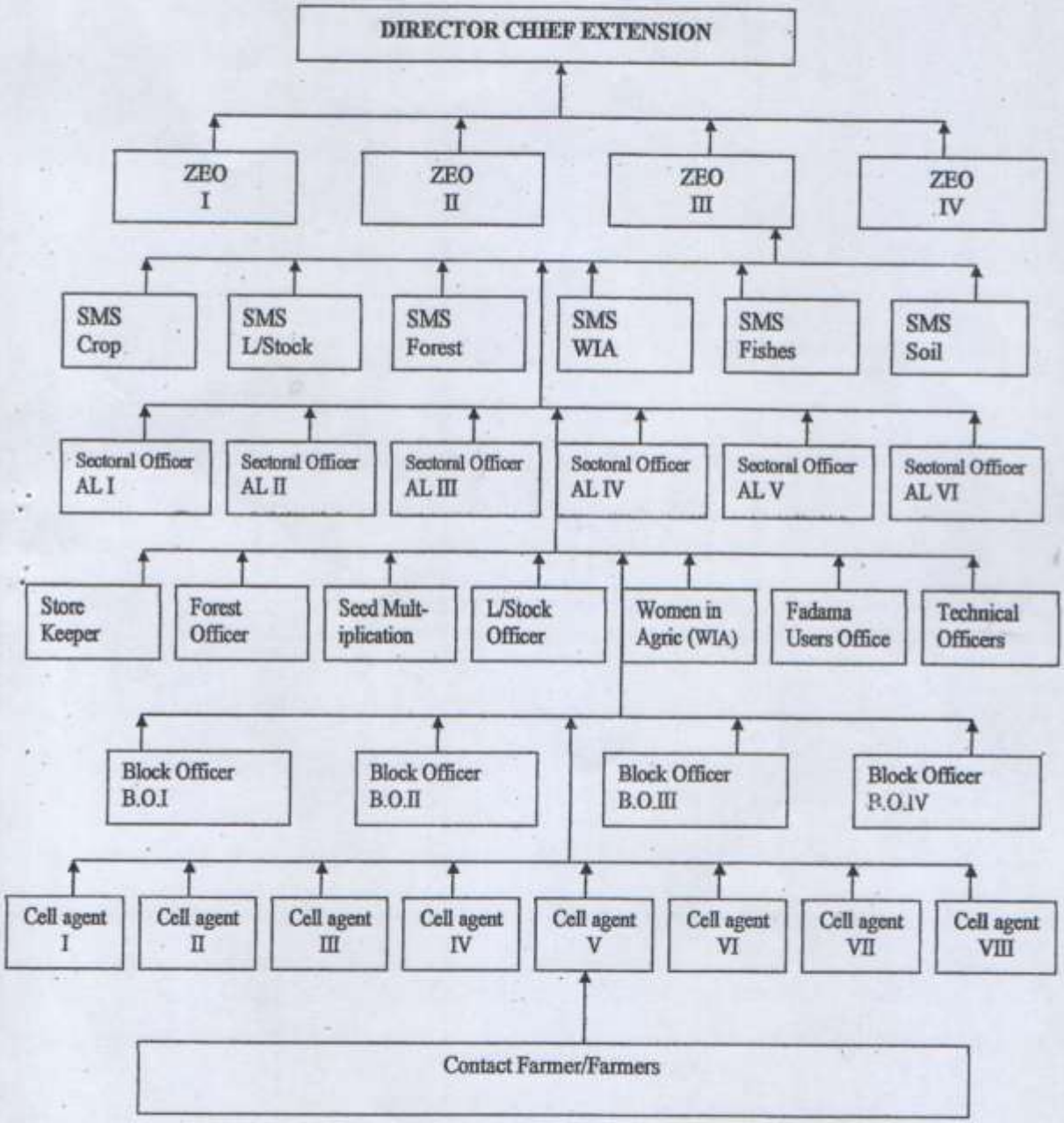


Fig. 2.1 The Adamawa State Agricultural Development Programme (AD-ADP). Administrative Chart.

*Source: AD-ADP (2001).*

**Table 2.1 ADADP Zonal Headquarters with their Relative L.G.As.**

| S/n | **Zone** | **Headqnater** | **L.G.s under the zone** |
|---|---|---|---|
| 1. | Zone 1 | Mubi | Mubi North, Mubi South, Michika, Maiha and Madagali |
| 2. | Zone II | Gombi | Gombi, Song, Girei and Hong |
| 3. | Zone HI | Mayo-Belwa | Yola South, Yola North, Mayo-Belwa, Fufore, Jada, Ganye and Toungo |
| 4 | Zone IV | Guyuk | Numan, Lamurde, Demsa, Guyuk. |

**Source:- ADADP Extension Diary, 2001.**

The programme headquarters is Yola, for easy administration and coordination of the project. Hie projects is also structured into six components namely:-

- The project management
- The Finance unit
- The planning monitoring and evaluation unit
- Rural infrastructure and engineering unit
- Technical service unit
- Extension training and research units, (see Fig 2.1)

The extension service unit is ultimately responsible for supervising all the extension activities and staff of the unit with the assistance of agric, chief extension officer (CEO), zonal extension officers (ZEO's) and the subject matter specialists (SMS).

The ADADP project is aimed at improving the welfare of the state's teeming rural population by providing fanners with necessary farm inputs. In a bit to make life more worthwhile for rural dwellers, the project engages in

activities such as the establishment of rural infrastructure in the form of feeder roads, and drilling of boreholes for portable water supply.

(FMANR, 1988).

## 2.4 The Training and Visit System of the Extension Approach in Adamawa A.D.P.

The state resources management project, in cooperation with agricultural extension services which generally work on the training and visit (T&V) principle advocated by the world bank, work under the unified extension system, in order to disseminate information to the farmers, model farms were introduced to serve as demonstration farm to farmers, this farm involved.

1. Experimental production of crops, livestock and agro forestry
2. Improvement and maintenance of soil fertility
3. Efficient marketing of agricultural produce
4. The introduction of Agricultural education for training of extension staff and farmers (FACU, 1994).

The primary focus of ADADP was in the area of food crop production. The project has therefore, effectively established a comprehensive result oriented agricultural extension service based on the training and visit system (T&V) in the four zones.

The operation of T&V system of extension virtually eliminates the weakness inherent in the state Ministry of Agriculture. This is due to the fact that training form part of the T&V system approach of extension services. Benor's T&V system model, which is being adopted by ADADP provide a continuous learning experience to all field staff, so as to get them well acquired with the necessary technical know how in agricultural production. FAO (1985), observed that in some countries of Asia, Africa, Latin America and the near east, the strategy of extension follows a systematic approach which starts with identification of a priority concerned in agricultural condensation and participatory survey of farms knowledge attitude and practice of locally available technological know-how.

William (1988), defined extension education as a process that brings about improvement in a systematic way, through carefully planed and organized system. The success of any organization and programme depend on professional staff to execute the plan effectively (Nwogu, 1996). The training programme in ADADP were designed in such a way that, the village level extension worker undergo training at least twice in a fortnight, the first training is organized by a team of subject matter specialist (SMS). In collaboration with sectoral officers, while the second weekly training in the fortnight is conducted by the Block Officers (BO) who are the immediate supervisors of the extension agent (E.A). The training programme is such that practical demonstration takes two third of the training, one third of the period is spend on theories.

Rogers (1989), observed that "farmers generally would not observed what could be done on farms, operated at the public expenses". There must therefore be demonstration carried out by the farmers themselves on their own farms under ordinary conditions. The extension agent is equipped with knowledge and skills to solve farmers agricultural problems, it's a step by step process where learners (farmers) can.

- See the job being done on his farm
- Learn the proper principles and procedure of fanning techniques.
- Know when and how to use technical procedures.

These make extension planning purposeful, systematic from bottom upwards, and participatory using knowledge, attitude and practice. Field days are also conducted in which an area containing successful farming or other practice is opened to people to learn. Kelsey (1987) stated that to exhibit such improve practice. Seed samples, modern tools, and educational material are usually display on such a day. The host fanner should play a prominent role in the discussion techniques been demonstrated. Furthermore, the extension agent should be readily available to clarify technical points. Out puts of the harvest are determined during the field days.

The spreading of information and the stages through which the packages are passed is referred as "difiusion" it is a specific segment of sub set of communication the extension process by which an idea get from its source of origin to it people of ultimate use.

The rural people (farmers) obtained information from many sources, the sources are generally categorized in to four namely:

1. Mass media (e.g. Radio & T.V.)
2. Government agency (e.g. extension agent)
3. Neighbours (e.g. friends)
4. Commercial sources, e.g. magazine and news papers (FAO,1985).

Research has shown that sources use by farmers varies with the stages in their adoption or difiusion processes (FAO, 1985). It is also indicating that mass media are must important in the creating awareness and interest, friends and neighbors are important in the evaluation's trial and adopted stages.

Conclusively, the training and visit system of agricultural extension has been widely adopted over the last decades and is now been used in at least forty countries (FAO, 1996).

FACU (1994) stated that the framework of T&V system is an integrated set which are mutually coherent of an extension approach.

The extension worker must therefore do all in his power to build up natural trust between himself and the farmers by:

1. Demonstrating competence in needed practice or skill
2. Conducting successfully result demonstration
3. Showing genuine interest in the farmers and his family and
4. Doing what he promised and only promising what he can do. it is been observed that many a time extension workers have been known to promised supplies which never arrive at all or too late for the purpose intended (e.g. fertilizer supply).

Glenn and Johnson (1996), recommended that encouragement of the extension staff to adopt an attitude of persuasion through demonstration and

teaching of farmers, rather than through approach which direct fanners as typified by such staff, the act of demonstrating technologies and the improved practice to farmers has been the teaching tool for many years. ADADP (1996), revealed that a good demonstration has proven to be an effective method arousing farmers interest and disseminating technical information to them, through small plot adoption technique (SPAT's). The teaching method of extension encompasses informal and formal technique of communication between the extension workers and the target groups farmers) and others beneficiaries of the extension massage, (Benor, (1987). The different methodology is characterized into individual contact method, group method and mass method. The categorization is based on the number of farmer conducted at a given time, as shown in Table 2.2.

**TABLE 2.2 Categories of Extension Teaching Methods**

| Category of Contact | Method of Approach | Impact point of Approach |
|---|---|---|
| 1. Individual method Contact | Farm visit, Home Visit, Office Call, Small plot Adoption Technique (SPAT's,) phone calls Letters etc. | -Very effective but not very efficient -Farmers usually discuss more freely and openly With the extension worker. |
| 2. Meeting | Workshop, demonstration Management training plots, Lectures, symposia, group Discussion, field days, Tours, and Theaters e.t.c | -The extension agent communicate with several members of the target group at the time. -Group contact method is more efficient than individual, but less Effective. -It has more opportunities to participation. |
| 3. Mass method | Radio listening group, television viewers, news papers, Agric campaign bulleting, Agricultural shows, leaflets And extension guides | -It is very easy to communicate with large number of farmers at once than the group method - It is a one way communication flow thereby making immediate feedback Impossible. |

SOURCE: AD-ADP (1996)

Thus, the backbone of agricultural extension is the transfer of agricultural information to enhance productive capacity of the farmers (Umal, 1996). Consequently extension agent is regarded as public relation officers of the agricultural agency they work for. They are the information conduit between the ministry of agriculture, including the research institute and the fanners. The decision to adopt technical innovation is assumed to be associated with social, economic and physiological characteristics of the potential adaptors (Brown, 1981). 2.5

**Effect of Extension Packages and Adapters Behavior**

Most of the studies on extension in Africa are based on only one innovative practices at a time in order that the farmers get maximum benefit of the scientific idea but in a modern extension it is necessary to adopt more than one innovative practices as a package. (FACU, 1994) state that "extension packages" is conventionally called a delivery medium that extension is seen as a total transfer of innovation developed by researchers to "the ultimate" users, (Farmers) These include:

a. Transfer of technology
b. Advisory work and
c. Facilitating learning.

A.A.A. C.E (1976), found that in many different parts of the world, money invested in agricultural extension has not only given high economic and social returns, but has also assisted generation of farmers improving their efficiency and socio-economic competent and well being.

Knowless (1987), said, to ascertained that the new technology is adoptable in local conditions, the potential gains are the cost benefit from the adoption of improved technology that will exceed the added cost. This means the effect of extension innovation is presumption that farmers will adopt any improved and proven agricultural innovation, (such as technology, knowledge and skills).

Adebayo (1999, stated that analysis of communities shows that adoptionsof news innovation in quick when most farmers achieved satisfaction as result of the knowledge they have gained. **2.6 The Effect of Extension Technology on Crop Production**

Crop production Is the conversion of inputs into out puts. Production of crops required the use of resources (INPUTS) to obtain maximum yield (OUTPUTS ) and this resources could aggregate into land, capital, material , plans, water, animal, machine ,tools and services of man which in Economics term is known as labour.

Productivity is said to be the ratio between output and input in simple language, productivity is the ratio between the amount produced and the amount of any resources used in cost of production (FAO, 1996).

Benor (1987), found that the degree of contact farmers had with the extension agent was the most important explained of innovation programme success in eastern Nigeria. FACU ( 1994), conducted a study to determined the efficiency of resources use in swarm rice production among part time farmers and fulltime farmers in Bidda area of Niger state. The result showed that the production is profitable to both categories of farmers. The resource productivity analysis proved that the seed and capital inputs were under utilized, where labour was as result of none used of improved technology.

Umal (1996) found that size of family and contact with the extension agents were related to the adoption of improved practices of Tobacco in western Nigeria. However, the effort of government to increase food production in Ishola Rural development have led to the development of new high yielding varieties of maize, one such variety is western Yellow called Farz. An investigation into decision making by project farmers found that only 8% of the farmers considered the variety as solely cash crop, 26% grow it for subsistence alone and majority 66% grow it for both food and cash crop.

The same study showed that 76% of the project farmers based their choice of the new variety of maize on profitability and yield difference with other

variety of maize. Therefore, the important role that extension plays in agricultural development strategies emphases the need to strengthen crop production in the study area.

The revived seeds multiplication in KNARDA programme in Kano State, under which a total of 3,000 tonnes of assorted improved seeds were multiplied and package at kadawa LGA. Small holders farmers groups with 27,000 MTs of assorted fertilizer, 79,727 litres of agriculture chemical and 1,700 sprayers were distributed to support farmers on crop production activities with 40% subsidy (KNARDA, 2005). 2.7 **The Impact of Extension & Sustainability**

World Bank (1990), stated that "The common future" on extension programme is sustainable development that satisfied the present needs without risking the possibility that future generation may not be able to satisfy their own needs. This implies that resources should be used for the benefit of the present generation. They must not be merely exploited and destroyed but rather their full potential must be developed.

Paul (1984), revealed that sustainable development not only covers the economic dimension. But gives equal footing to ecological, social and economic dimensions.

A according to Nwogu (1996). One possible outcome of change is progress, and progress results from creative action. Therefore, the typical goals of extension and rural development projects must be to satisfy the population's social and economic needs while at the same time responding to environmental concerns. According to Ogbonna (2004), many resources conservation projects have succeeded because of their activities, is addressing the local community and safe guarding their vital resources. That is to say that all practitioners in extension must first learn to listen and tailor their service (through technology, training, specialist advice, assistance in cash and kind) to march people's socio-economic needs. Therefore, the justification of extension impact apart from dynamic development of information and extension communication technology is the

knowledge and experience in the scientific field that can be acquired through participatory process.

Mshelia (2005), revealed that in early days, in the north, the extension work consisted essentially of intensive village to village touring on horse- back or on foot by the agricultural officers, showing the farmers, by advising, and demonstrating how to fit export crops in to their farming system. This shows that the intensive nature of work consist of frequent visit by agricultural officers, followed by other field workers and supervisors. He further explained that, The objective of the scheme in the north was to settle nomadic herdsmen permanent. While in the eastern part extension work consist routinely of the provision of supplies and services, while education functions were ignored, staff training merely emphasized competence in technical agriculture, while principle and method of extension were not taught.

Russell (1985) revealed that knapp, offered favorable incentives to settler in the north in lake Chad, when it proved difficult to interest the native population in improved method of agriculture and farmers from the north would not settle in the region because of the apparent unfavorable agricultural conditions of the areas. The plan was so successful that thousand of farmers from the north settle on the area and the native's copies good farming from them (Ogbonna, 2004). 2.8 **Extension Empowerment and Productivity in Rural Development**

The major concern of this study is on "Agricultural extension education" that arises in rural development programme. This is in view of the separate process involved in rural development and at the same time the complex pattern of the interaction that correctively constitute rural development. The modern extension strategies consist of three components, the State, the Federal and the International agencies. The aim of the extension programme is to reduce poverty, and it focuses on a increase in production and productivity in the rural areas.

Blender (1989), revealed that integrated rural development In extension is directed to modernization of rural areas, with their transition from traditional

isolation to integration. (Umal, 1996) revealed that the extension service in rural development is beyond a single sector, it encompasses improving productivity, increase in employment as well as improvement for food, shelter, education and health, which is in line with the World Bank, polices. The rural development is a strategy designed for the poor (Ogbonna, 2004).

It is also been observed that improve food supplies together with basic services such as health and education would not only improve the physical well being and quality of life of the poor, but will also enhance their productivity and contribute to their traditional economy (Paul, 1984).

Therefore, the implication of national policy and state in rural development include mixed activities that will raise agricultural output, create new empowerment, improve health and education, expand communication and improve housing, in order to reduced the imbalance between the development area and the stagnated area. The idea of integrated rural development is grammatically depicted by Rondinelil and Kenneth (1998), which shows that the rural development has gone further than social integration it include national, State and Local government agency as well as the rural people for whom the development is planned.

# CHAPTER THREE RESEARCH METHODOLOGY

## 3.1 Sources of data and Data Collection

Both Primary and secondary sources of data were used for the study. The primary data were obtained through the aid of well structured questionnaires, while the secondary data were sourced from relevant literature, textbooks and annual reports of some agricultural establishment as well as ADADP.

The apparatus used for the collection of primary data was the questionnaire, which was structured, to incite both open and close - ended responses. This covered the nature and quality of extension services on crop production, farmers farming operation, use of resources, output, personal characteristics and so on. Interview and observation were also undertaken on the field.

Trained field assistants or extension workers were engaged to help administer the questionnaires and well-completed questionnaires were analyzed, while the secondary data were sourced from relevant literature such as journal, proceeding, textbooks and annual report of some agricultural establishment. 3.2 **Sampling Procedure**

Considering the impossibility of covering the entire population of the farmers in the study area, a subset of the population called sample was used to represent the whole farmers in the area, so as to obtain the relevant primary data needed for the study. A survey method is the major procedure that had been adopted in the field to elicit information from the respondents. The probability sampling procedure was used and the systematic sampling techniques was adopted in order to arrive at the desired conclusion on the study i.e x=n/m was the ratio obtained as a sampling formular.

Where x=sampling ratio

m=population under investigation n=sample size

Therefore, at the first stage two districts of the study area were converted into 2 Block extension services (BES). Namely, Namtari and Yola Block extension services (AD-ADP 2001). At the second stage each BES is divided into cells, in order word three cells were randomly selected across the 11 cells in the 2 BES totaling 6 cells of the study area. To ensure a good coverage of the entire population. 3 villages were randomly from each cell bringing the total number of 18 villages for the study. Each BES is headed by a Block officer (BO) and each cells is headed by a village extension worker (VEW). While at the third stage, farmers were randomly selected from each of the three cells proportionally to their numbers listed in the selected villages from the samples of 9,739 registered farmers (ADADP, 2001). The sample interval for selecting farmers is 4 that is every $4^{th}$ person in the listed population is selected. The selection of fanners was carried out within the selected villages in the 2 districts of the study area. And the sample ratio of selecting farmers is l,4,8,12,16,20,24,28,32,e.t.c. This has giving an equal opportunity for every segment of the population, both male and female were considered equal for the study.

The sample of respondents consisted of 180 farmers from the 18 villages who had participated in the extension programme 8 years prior to conducting this study that is 2002. This farmers where chosen because valid list of those who had participated earlier than 2002 where difficult to obtained. In addition of the above, subject matter specialist (SMS), supervisors, and policy makers were selected in respect of gender, the main criterion for chosen these respondents was there knowledge of operation of Agricultural Extension Services in the Study Area.

For efficiency, the attention and cooperation of the traditional rulers, leaders of farmers organization and the peasant farmers was drawn during the exercise.

### 3.3 Method of Data Analysis

Based on the objectives of the study, the method of data analysis employed in the research work was the use of descriptive statistics which involves the use of percentages, tables and frequency counts to analyze the data obtained such as age, sex, literacy level and other personal characteristics of the rural farmers in the study area. Moreover, Gross margin was used to determine the profitability of the farmers while Correlation analysis was used to describe some of the achievements of ADADP like the SPAT establishment, farmers trained, Women In Agriculture, inputs distribution such as improved seeds, fertilizer, water pumps seed dressing chemical, livestock breeds (Poultry and Rabittry), agro-forestry, and fishing materials in the study area. While the regression analysis was use to predict one variable from the other variables, on the basis of the assumed nature of the relationship between the variables. That is to determine whether there is a relationship between the number of the extension visit and the out put of farmers in the study area.

### 3.4 The Gross Margin

The gross margin analysis involves evaluating the profitability of an individual enterprise (or farm plan), so that comparison can be made between enterprises or farm plans.

Gross margin (GM) by definition is the difference between the total revenue (TR) and the total variable cost (TVC), that is GM = TR - TVC Where TR - Total Revenue TVC - Total Variable Cost The total variable cost considered include, the cost of land clearing / ploughing, fertilizer, recommended herbicides/insecticides, supplementary weeding, harvesting, transportation and so on.

### 3.5 Correlation Analysis

Correlation analysis was used to examine the form of relationship occurring between the farmers output value (X) and number of visit by extension agent (Y).

Correlation Analysis is a form of relationship between two variables. The peason product moment correlation coefficient is given as:

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2}\sqrt{n\sum y^2 - (\sum y)^2}}$$

Where the emerging pattern could be any of the following

a. When Y increase as X increase that is positive or direct correlation.
b. When Y decrease as X increase that is negative or inverse correlation.
c. When there is no relationship between the variables that is they are uncorrelated.
d. In this study y represent No of extension visit while x represent out put of farmers on crop production.

**3.6 Regression Analysis**

The regression analysis is a statistical tools, which help to predict one variable from the other variable on the basis of assumed nature of the relationship between the variables. The variables been predicted is usually referred to as the dependant variables, because it value depends on the other variables. Therefore the relationship between x and y can be expressed as $y = a + bx$ Where y = represent number of visit by the extension worker and X = represent the value of outputs of the respondents (farmers)

**3.7 Expected Result**

It is expected that at the end of the research, it will be clear whether agricultural extension Programme in Yola South Local Government area had made significant impact on output of farmers or not. This will be based on the analysis of the data and finding from the result of small plot adoption technique (SPATs) in the area. It is assumed that at the end of this research, farmers will

adopt the improved practices, the causes of low *yield* will be identified and farmer will be advised appropriately.

# CHAPTER FOUR

# RESULT AND DISCUSSIONS

This chapter contained the data analysis and findings of the research. Out of 180 questionnaires distributed, 168 were retrieved from the respondents, while 12 copies were not properly administered. Therefore, the data were calculated based on simple descriptive analysis, percentage and statistical techniques to test the hypothesis. **Analysis of Data and Interpretation of the Result**

This research was conducted primarily to assess the opinion, beliefs and attitude of the farmers and the agricultural extensions staff on crop production in Yola south local government area of Adamawa State, toward their work and the community they served as a major factor influencing their functional effectiveness in the field.

**Table 4.1: Sex Distribution and Adoption of Extension Innovation on Crop Production**

| | Adopters | | Non adopters | |
|---|---|---|---|---|
| Sex | Number | Percentage | Number | Percentage |
| Male | 78 | 58.65% | 14 | 40.00% |
| Female | 55 | 41.35% | 21 | 60.00% |
| Total | 133 | 100% | 35 | 100% |

**Sources: Field survey, 2007.**

Table shows that 78 of the adopters are male, while about 55 are female. This is an indication that majority of the adopters are male. The small percentage of the female farmers may be attributed to their socio-economic status, child bearing problems and other psychological barriers that women have to overcome to succeed in technical education makes their status in agriculture shaky and their number low.

But with the normal help of the extension workers effort were made to help farmers increase their production through intensive education and the adoption of

improved practices introduced through the maize, rice, groundnut and sorghum production package initiated by ADADP since 1991. There were eight improve practices adopted by the farmer, namely, improve seed at seed rate of about 25-56kg/ha, chemical fertilizer application (e.g NPK, UREA and SSP) at a rate of 100-125kg /ha, to be applied within lOdays of planting, Time of planting (within the 4 weeks interval of June 15 to July 15), plant spacing (depending on the type of crops and varieties between the rows and within the rows ), time of weeding (the first weeding to be carried out 10 days after planting and the second weeding 15 days later) and time of harvest ( harvesting to be carried out 125 - 135 days after planting) depending on the type of crop and varieties.

With regard to adoption of extension practices on crop production among the female farmers about 41% are practitioners, while 59% of male farmers practiced extension techniques despite their very large number, comparatively the percentage to that of female there is big difference to that of Male. **Table 4.2: Marital Status and Effect of Extension Innovation on Crop Production**

| | **Adopter** | | **Non adopters** | |
|---|---|---|---|---|
| Marital Status | Number of farmers | Percentage | Number of farmers | Percentage |
| Single | 22 | 16.54% | 5 | 14.29% |
| Married | 60 | 45.11% | 12 | 34.29% |
| Widowed | 18 | 13.54% | 10 | *28.57%* |
| Divorced | 33 | 24. 81% | 8 | 22.85% |
| Total | 133 | 100% | 35 | 100% |

**Source: Field survey,** 2007

Table 4.2 indicates that about 45.11% of the above adopters are married, while about 16.54% are single, 13.54% are widowed and 24.81% are divorced.While 14.29% of the non-adopters are single, 34.29% are married, 28.57% are widows and about 23% divorces respectively. Here, the effect on adoption of extension innovations is independent of the marital status of the farmers.

The practices that are less complex in nature are required less expenditure were adopted by more farmers especially married farmers. This practices are time of planting, time of weeding and time of harvest. Therefore, more effort should be made by extension personnel educate the farmers to increase their knowledge and skills. More Radio programme should also be used to broadcast on the improved agricultural practices. **Table 4.3 Age Distribution of Farmers and Adoption**

| | Adopters | | Non Adopters | |
|---|---|---|---|---|
| Age of Fanner's | Number of farmers | Percentage | Number of farmers | Percentage |
| 18-24 | 17 | 12.78% | 3 | 8.57% |
| 25-35 | 51 | 38.35% | 8 | 22.86% |
| 36-45 | 52 | 3 9.10% | 13 | 37.14% |
| 46 & Above | 13 | 9.77% | 11 | 31. 43% |
| Total | 133 | 100% | 35 | 100% |

**Sources: Field survey, 2007**

Table 4.3 shows that majority of the adopters (about 77.45%) are between 25 and 45 years of age, this shows that majority of the adopters are in their prime age.

It is clear that young farmers are more responsive to change than the old one. One can conclude that younger farmers have more inclination toward the adoption of modern farming techniques than farmers who are old. This is because traditions and culture miligates them against the use of improve practices, in many parts of Nigeria rural farmers at tender ages are subjected to some cultures and traditions. While, the old are conservatively stick to primitive method of farming, unaware of improved new method of farming, in some cases there response to production method are consciously slow as they do not appreciate the benefits associated with such changes.

**Table 4.4 Educational Status and Level of Adoption**

| | Adopters | | Non Adopters | |
|---|---|---|---|---|
| Literacy Levels | Number of farmers | Percentage | Number of farmers | Percentage |
| No formal Education | 19 | 14.3% | 19 | 54.29% |
| Primary Education | 28 | 21 % | 4 | 11.43% |
| Secondary Education | 36 | 27% | 2 | 5.71% |
| Post Secondary Education | 27 | 20.3% | 7 | 20.6% |
| Other forms of Education | 23 | 17.3% | 10 | 28.57% |
| **Total** | **133** | **100%** | **35** | **100%** |

**Sources: Field survey, 2007**

About 86% of the adopters has one form of formal education or the other while almost half of the non adopters had no formal education.

One may deduce from this result that education is a vital ingredients in the adoption process. Moreover the implication is that, illiterate farmers may not benefit from any new ideas because of their inability to understand the new idea in crop production. Many farers in rural area cannot read and write either in English or in their regional dialect of communication this hampers their agricultural development because numerous publications associated with the agricultural improved practices can be read or understood by them. I.e. illiteracy make it impossible for rural farmers to comprehend simple instructions written on or about any item they need to use in the rural area e.g. Drugs, insecticide or herbicides. Thurs illiteracy create communication gap between the farmers and the researchers.

**Table 4.5 Primary Occupation of Farmers**

| | Adopters | | Non Adopters | |
|---|---|---|---|---|
| Primary Occupation | Number of respondents | Percentage | Number of respondents | Percentage |
| Farming | 68 | 51.13% | 7 | 20.00% |
| Trading | 23 | 17.28% | 10 | 28.57% |
| Civil Servant | 27 | 20.30% | 12 | 34 .29% |
| Others Occupation e.g Carpentry. | 15 | 11.29% | 6 | 17.14% |
| **Total** | **133** | **100%** | **35** | **100%** |

**Source: Field survey 2007**

Table 4.5 shows that 51.13% of the total respondents are farmers i.e. they take farming as their main occupation. While the rest combine farming with other works such as trading, (about 17.28%) Civil Service (26.30%) and others (about 11.29%) majority of the non adopters combine farming with other jobs. The nature of acquisition of farm land in the study area also affect the adoption of innovation.

**Table 4.6 Farm Size and Adoption**

| | Adopters | | Non Adopters | |
|---|---|---|---|---|
| *Farm size* In hectares | *Number of* farmers | *Percentage* | *Number of* farmers | *Percentage* |
| 0.5 – 2 | 31 | 23.31% | 26 | 74.29% |
| 2.5 – 5 | 77 | 57.89% | 6 | 17.14% |
| 5.5 – Above | 25 | 18.80% | 3 | 8.57% |
| **Total** | **137** | **100% 35%** | | **100%** |

**Source: Field survey, 2007**

Results in Table 4.6 indicates that there is a strong relationship between farm size and adoption of extension innovation on crop production in the study area. From the Table, about 76.19% of the adopters have relatively large size of farms and the remaining percentage have small size of farm. This shows that

majority of the affected farmers have large size farm, while many of the non adopters (74.29%), cultivate between 0.5 and 2 hectares of land. Therefore inputs of extension innovation on crop production may depend on soil fertility and the size of the farm. The consistents lack of money and enough farm land by rural farmers account for large percentage of their problems, they depend on yield from crops or service to earn money, when there is poor yield due to poor soil fertility (land) primitive production method and adverse climatic conditions their income falls drastically, poverty it thurs perpetuated.

**Table** 4.7 **Membership of Cooperative Organization and Adoption of Extension Innovation**

| | Adopters | | Non Adopters | |
|---|---|---|---|---|
| Membership | Number of farmers | Percentage | Number of farmers | Percentage |
| Non member Cooperative | 43 | 32.33% | 20 | 57.14% |
| Member Cooperatives | | 67.67% | 15 | 42.86% |
| Total | | 100% | 35 | 1090 |

**Sources: Field survey,** 2007

A cooperative organization is a legal device in which people come together voluntarily on the basis of equity to help themselves, that is for the promotion of their economic well being. The advantages of a cooperative organization include.

Helping to educate members on the use of modern agricultural technology educates members on their rights in order to improve socio economic awareness among the farmers.

Helping members in obtaining credit from qualified institution in order to boost their agricultural production as well as providing essential manufacturing commodities to farmers in rural areas.

Therefore Table 4.7 indicates that about 68% of the adopters are members of one or more cooperative group, while about 32% are non members. Meaning

that majority of the adopters are cooperative members. This indicate that the high percentage of farmers in the cooperatives are adopters. The implication here is that any group of farmers that lacks this cooperative organization may not find it easy to adopt any agricultural innovation.

This is because majority of the farmers cannot purchase modern inputs easily, and the only possible alternative is to join cooperative associations through which they can either purchase or hire agricultural implement easily. Majority of the non adopters do not belong to any cooperative society.

**Table 4.8 Contacts with Extension Agents and Adoption of Innovation**

| | Adopters | | Non Adopters | |
|---|---|---|---|---|
| **Categories of contact** | **No. of farmers contacted** | **Percentage of farmers** | **No. of farmers** | **Percentage of farmers** |
| Contact with Extension Agent | 62 | 46.64% | 9 | 25.71% |
| Contact with Women in Agric (WIA) | 27 | 20.30% | 7 | 20.00% |
| Contact with Fadama Facilitators | 24 | 18.05% | 3 | 8.57% |
| No – contact | 20 | 15.03% | 16 | 45.72% |
| **Total** | **133** | **100%** | **35** | **100%** |

**Source: Field survey, 2007**

The result of Table 4.8 indicates that about 85%, of the adopters have contact with either the extension agents, women in Agriculture (WIA) or the facilitators of Fadama II programmme respectively, while only 15.03% have no contact with any of the agents mentioned above. on the other hand almost half (about 46%) of the non-adopters do not have such contact. This indicates that government policy on agricultural development did not reach rural farmers. However, contact with the extension agents, women in agric. And Fadama Facilitators, the result of the study has shown that a large percentage of farmers contacted had adopted the improved agricultural practices introduced to them than the un-contacted farmers in the study area, that is in all the eight improved practices introduced to them as shown in table 4.13 the adoption of contacted farmers were significantly high and they are in order of their importance, the higher of the adoption of the improved practices is attributed to their participation on SPATS establishment during which they received basic training on improved farm operation.

**Table 4.9 Types of Labour used by Respondents**

| Type of labour | Number of farmers | Percentage |
|---|---|---|
| Family | 15 | 8.93% |
| Community Labour | 26 | 15.48% |
| Family & Hired Labour | 74 | 44.05% |
| Hire Labour only | 53 | 31.54% |
| **Total** | **168** | **100%** |

**Sources: Field Survey,** 2007

Table 4.9 indicates the distribution of farm operation according to the type of labour and it depends on the nature of activities on the farm. Family combined with hired labour formed the highest type being employed by the respondents. This is followed by community which is 15.48% and 8.93% depending on family labour. One may conclude that this category are growing for subsistence but majority of the farmers depend on both family and hired labour for their various farm operations. **Table 4.10 Source of Information**

| Sources of Information | Number of farmers | Percentage of farmers |
|---|---|---|
| Extension Agents | 55 | 32.74% |
| Fields gathering | 28 | 16.67% |
| Mass media | 17 | 10.12% |
| Cooperative Organization | 68 | 40.48% |
| Total | 168 | 100% |

**Sources: Field survey, 2007**

Table 4.10 shows that formers surveyed have various sources of extension information, the table indicate that majority of the fanners have cooperatives organization as the leading method or sources of their information, about 41% of the farmers obtained their information on agricultural techniques through the cooperatives organization, 32.74% received their information through the extension agent and 16.67% were enlighten from various social gathering. Then the remaining 10.12% obtained their techniques through mass media. The result also indicate the importance of the cooperative organization in the extension service, in the diffusion of agricultural innovation, if these two sources of information are lacking in agricultural development, these may hinder the effective development of crop production in the rural area.

**Table: 4.11 Sources of Farming Experience of the Respondents**

| **Sources of experience** | **Number of farmers** | **Percentage** |
|---|---|---|
| Parents | 93 | 55% |
| Relationship and Friends | 39 | 23% |
| Educational Background | 36 | 21.43% |
| **Total** | **168** | **100%** |

**Sources: Fields survey, 2007**

Table 4.11 shows that 55% of the respondents have their farming apprenticeship experience through their parents, while 23.21% and 21.43% gain their experience through relatives, friends and community. This result also indicate that majority of the farmers had their experience of farming through parents whose occupation is farming.

**Table 4.12 Small Plot Adoption Techniques (SPATS) Establishment by AD-ADP from 2002-2007.**

| Years | SPATS Target | SPAT Conducted | SPAT % | No of SPATS Successful | Percentage Successful SPATS |
|---|---|---|---|---|---|
| 2002 | 1342 | 5531 | 13.01% | 4875 | 14.4% |
| 2003 | 1320 | 4738 | 11.14% | 4686 | 13.8% |
| 2004 | 13450 | 7464 | 17.55% | 5933 | 17.5% |
| 2005 | 13750 | 8364 | 19.67% | 6181 | 18.2% |
| 2006 | 14750 | 7938 | 18.67% | 6218 | 18.4% |
| 2007 | 14750 | 8484 | 19.95% | 5983 | 17.7% |
| Total | 60362 | 42519 | 100% | 33876 | 100% |

**Source: ADADP report, 2007**

The small plot of adoption techniques (SPAT) is a small scale farm measuring (10m x 5m) for demonstration of a superior proven technology carried out by farmers on their*own farms by using their own input, under a close technical supervision and guidance by the extension agents or women in Agric (WIA).

In all the Agricultural programme, the extension unit is responsible for the provision of information to Subject Matter Specialist (SMS), Zonal Extension officers (ZEO), Agric Liaison Officer (ALO), Block officers (BES), Women in Agric (WIA) and the Village Extension Agents (VEA) that links the extension to research system and provide technical support to the field staff and farmers.

The extension agents were at the centre level, they represented the subject matter specialist on area of crop production, horticultural crops, animal husbandry, home economics etc. In the rural area (village)

The extension cell otherwise called village which is the area covered by one extension agent or women in Agric (WIA) they are directly encountered with farmers, there should be one extension agent (EA) or Women in Agric (WIA) to one cell for approximately eighty (80) farmers out of the 800 farm families. They will work with about 80 contact farmers who would be selected by

group of farmers in their respective villages. Table 4.12 shows that 79.67% of the SPATS conducted in 2004 were successful. The unsuccessful SPATS were due to some economical and environmental factors that are beyond the farmers controlled.

**Table 4.13 Number of Improved Practices Adopted by Contact Farmers on SPATS Demonstration.**

| No. of Improved Practices Adopted | No. of adopters | percentage of adopters % |
|---|---|---|
| Improved seed (Varieties) | 22 | 13.10% |
| Plant Population (Spacing) | 21 | 12.5% |
| Early planting | 16 | 9.52% |
| Use of Herbicide | 23 | 13.69% |
| Fertilizer application | 41 | 24.40% |
| Thinning | 17 | 10.12% |
| Early Harvesting | 15 | 9.52% |
| Use of Storage Chemicals | 13 | 7.80% |
| Total | 168 | 100% |

**Source: Field survey,** 2007

In all the eight improved practices, the adoption of contacted farmers were significantly high and they are in order of there importance. About 24% of the contact farmer had adopted the use of fertilizer applications demonstrated on SPATS.

The higher of the adoption of the improved practices is attributed to their participation on SPATS establishment during which they received basic training on farm inputs and intensive education on the practices. In contrast, the higher adoption score of the package fanners can be attributed to their participation in the SPATS establishment during which they received farm inputs, and intensive education on the improved practices. While the practices that are less complex in nature were adopted by more of the contact farmers and non contact farmers in

the study area the result of the study has also shown that about 73% Of the farmers had adopted 2 or all the 8 improved practices demonstrated.

While the low adoption of the improved practices demonstrated as a whole may be due to certain perceptions of farmers on some of the practices. They think that certain recommendations such as rate of chemical fertilizer and herbicide might not be technically sound to the soil, climatic conditions and other factors associated with crop production in the study area.

Table 4.13 indicates that there are some farmers who used fertilizer, herbicide and seed dressing chemical are considered as non-adopters of the improved practices, because they did not use it at the recommended rate and time of application. **Table 4.14 Yield Increase on Crop Production as Result of Extension**

**Services Per Hectare of Land Cultivated by the Respondents.**

| S/N | Major Crops Cultivated by 168 respondents | Average Yield in (kg) per hectare of land Before extension | Average Yield in (kg) per hectare of land with extension practices.(1991-2007) | Average yield difference in kg. | percentage of yield increase per hectare of land |
|---|---|---|---|---|---|
| 1. | Maize | 800kg | 1400 kg | 600kg | 20.69% |
| 2. | Rice | 1200kg | 1800 kg | 600kg | 20.60% |
| 3. | Sorghum | 900kg | 1350kg | 450kg | 15.52% |
| 4. | Millet | 650kg | 900kg | 250kg | 8.62% |
| 5. | Cowpea | 800kg | 1,800kg | 400kg | 3.80% |
| 6. | G/Nut | 750kg | 10,50kg | 300kg | 10.34% |
| 7. | Bambara nut | 600kg | 900kg | 300ke | 10.34% |

**Source: Field Survey,** 2007.

With the present increase of population, the means of feeding more people is becoming difficult by peasant farmers, who can not produce enough food for their families as they are characterized by low level of education, small farm and, and other agricultural related factors associated with crop production. That is why government have been influencing agriculture, through intensive extension

education on the adoption of improved practical initiated by the world bank through ADPS.

The programme is to encourage people in the village to increase their productivity by 50%, this effort has led to development of high yielding varieties of crops such as rice, soghum, maize e.t.c.

Table 4.14 indicate average increased in yield on the major crops cultivated per hectare of land by the respondent, the result shows that rice and maize each graded 21% which is the highest percentage on yield increase on the out put of farmers per hectare of land as a result of extension education in the study area. While 15.52% of sorghum graded second in yield increase, Groundnut and Bambaranut production each has 10.34% respectively, then millet has 8.62% per hectare of land cultivated during the cropping season.

Therefore, with the present emphasis on increased in food production in Nigeria. It is important that agricultural extension administrators and planners have data and information needed for the decision they have to take, because about 80% of the population of Adamawa State are directly dependent on agriculture in one form or the other for their survival as a source and means of their existence. It is also pertinent for extension workers to present technical information in such a manner that farmers can easily understand, remember and apply the technologies. Extension education is designed to help rural farmers to satisfy their needs and desires.

**Table 4.15 The Average Income of the Respondents for 2007 Cropping Season**

| Category of income Level / year | Number of Respondents | percentage of Respondents % |
|---|---|---|
| Less than N10, 000 | 23 | 13.69% |
| N10,000-15,000 | 61 | 36.31% |
| N16,000-N25,000 | 41 | 24.40% |
| 26,000-50,000 | 40 | 23.80% |
| 51,000-100,000 | 2 | 1.19% |
| 11 0,000 -Above | 1 | 0.59% |
| | 168 | 100% |

**Source: Field survey, 2007**

Table 4.15 described the investment revenue income of the farmers production per annum this indicates that 13.69% of the respondents earned less than N10, 000 per cropping season, 36.31% of the respondents felt that they earned Nil, 000 - Nl5,000 per cropping season. While 24.40% earned N16,000 - N25,000 were 23.80% of the respondents earned higher income of N26,000 -N50,000 while 1.19% earned N50,000 - Nl00,000 respectively. The remaining 0.59% of the respondents did not indicate their income, the possible explanation for this is that the amount realized from their sales have not solve their farm or family problems and no farm record was kept by most of the respondent.

**Table 4.16 Farmers Attitude Towards Extension Services**

| Five points scale on The extension activities | Number of farmers | Percentage % |
|---|---|---|
| **Excellent** | **12** | **7.14%** |
| **Good** | **37** | **22.26%** |
| **Fair** | **38** | **22.63%** |
| **Undecided** | **29** | **17.26%** |
| **Poor** | **52** | **30.95%** |
| **Total** | **168** | **100%** |

**Sources: Field survey, 2007**

The measuring of the attitude of farmers about the extension activities in the study area involved five point scales. A list of attitudinal statement interviewed shows that respondents were able to react on each statement which include excellent, good, fairly undecided and poor. Table 4.16 indicate that 7.14% of the respondents measured excellence with the presence extension service on crop production, were 22.26% and 22.63% of the respondents graded good and fairly agree with the service of the extension workers in the study area, while the remaining of the respondents 17.26% and 30.95% constitute the disagreement and poor nature of the extension services in rural area. Particular on promises taking by extension workers in the supply of farm inputs (eg. Fertilizer), where they are not seeing. The result of this shows that less than half of the farmers survey disagree and gave a poor remark. This is an indication that smaller proportions of the farmers in the rural area are not satisfied with the extension services being rendered in the villages.

**Table 4.17 The Effects of Fadama II in the Study Area**

| Level of Participant's | Number of respondent's | Percentage of respondents |
|---|---|---|
| **Beneficiaries** | **53** | **31.55%** |
| **Non - Beneficiaries** | **115** | **68.45%** |
| **Total** | **168** | **100%** |

**Sources: Field survey, 2007.**

Farmers are usually the end users or consumers of any agricultural innovations or programme introduced by the researchers. They are the immediate beneficiaries of new innovation or technology sold to them by research.

In view of the ADADP Extension unit and Fadama n programme in the study area, the local government Fadama desk office (LFDO) and ADADP Extension Leason Office whose office is the agricultural department and natural resources of Yola South Local Government. The LFDO is managed by 2 desk officers, 1 ALO with five facilitators, 3 BBS with 24 extension agent and 3 women in agric (WIA). The study also confirmed that the achievement made in Yola South Local Government during the Year under review (2002-2007) include the following

1. 11 FCAs were formed and registered as a group at the wards level, out of the number mention 10 FCAs are functional in the local government under study.
2. The LFDO in conjunction with ADADP extension service unit has proposed and prepared 97 sub project, out of it 63 of the sub project were implemented were 42 of them are under crop production.
3. 11 rural infrastructural projects were also proposed and implemented at the FCA level. Example Makama B' FCA, (training and skill acquisition center) and Fombina ultra modern cattle market.
4. 52 pilot asset acquisitions for FUGs were also implemented within the area, i.e. 15 crop fanner FUGs project 15 processors groups, 20 livestock FUGs and fishers folks FUGs sub project were implemented during the year 2004 -

2006. The researched also confirmed that eight FUGs groups have benefited from input: - support on crop production and livestock production (LFDO/ADADP 2007).

Table 4.17 indicated that 31.55% of the respondents participated in Fadama I & II programmes have benefited. The finding also revealed that before the arrival of Fadama n programme in the area, the farmer know the importance of Fadama development through the agricultural extension agents of ADADP. While 68.45% of the respondents were not aware of the introduction of Fadama n programme and did not participate in the programme, this is due to lack of proper awareness and in insufficient of extension staff, facilitators, policy makers, and administrators lapses on technical programmes. It is therefore advisable for the extension organization to try and solve technical problem of fadama 1 & n users and develop a suitable technology for Fadama farmers. And the innovation should be available to extension staff and facilitators to communicate the Fadama messages to farmers effectively.

**Table 4.18 Problem of Extension Innovation Associated with Crop Production in the Study Area.**

| Level of Problem | No of Respondents | Percentage |
|---|---|---|
| Lack of improved seeds | 54 | 158.24% |
| Scarcity/lack of tractors | 64 | 21.62% |
| Adulteration/ fake recommended Herbicides / insecticide | 40 | 13.51% |
| Lack of feeder road | 10 | 3.38% |
| Lack of irrigation facilities | 18 | 6.08% |
| Lack/insufficient distribution of fertilizer | 70 | 23.65% |
| Poor communication system | 15 | 5.07% |
| Poor storage facilities | 25 | 8.45% |
| **Total** | | **100%** |

**Source: Field survey, 2007.**

Table 4.18 indicated that the main problems faced by peasant farmers on the extension dissemination, are in order of their importance and there are in multiple response 18.24% of the respondents indicated that improved seeds ranked as some of the worst problem in the study area. While 21.62% of the respondents show that lack of improved tools or implement (e.g. tractors), retarded agricultural development, 20.83% and 23.65% of the respondent were with the opinion that herbicides and fertilizer is ranked as the greatest problem on crop production in the rural area, this indicates that, distribution of fertilizer is the main factor that affect crop production in the study area, While few of the respondents i.e 3.38% were with the opinion that feeder roads problem affect extension programme in rural development, then the remaining of the respondents complain that, lack of storage facilities is also among the major problem of agricultural produce in the study area. The findings also described that 6.08% of the respondents indicated that irrigation facilities and

communication cap were also considered among the greatest problems facing by the farmers in the rural area.

**Table 4.19 Suggested Measures of Solving Problems by the Respondents on Extension Programme in the Study Area.**

| **Opinion Categories** | No **of Respondents** | **Percentage** |
|---|---|---|
| Formation of cooperative group | 54 | 20.69% |
| Formation of young farmers club | 25 | 9.56% |
| Provision of credit Facilities (micro loan) | 52 | 19.92% |
| Proper education to farmers | 33 | 12.65% |
| Donation of input by Govt andNGOs | 70 | 26.82% |
| Formation of women group | 27 | 10.35% |

**Source: Field survey, 2007.**

Table 4.19 suggestions shows that most of the problems can be solve through the following. 20.69% of the respondents suggested that the problems of extension programme in the study can be solved by formation of cooperative groups, and women groups, while 9.56% of the respondents suggest the formation of young farmers club will solve the problem of extension in the rural area, while 19.92% and 26.82% are with the opinion that provision of credits facilities and donation of inputs supports to farmers by government and NGOs ranked the most important measures in solving the problems of extension programme, were 12.65% of the respondents felt that proper education to farmers on the major issues related to agricultural production could be the deteraiining factor in increasing food production in rural area.

4.20 Gross Margin Analysis

Gross margin analysis is budgetary tool that can be used to compare the profitability of fanners income per cropping season, gross margin analysis involves evaluating efficiency of an individual enterprises (or farm plan) so that comparison can be made between enterprise or farm plan. Therefore, gross margin is a very useful planning tool in situations where fixed cost capital is a negligible portion for the farming enterprise as in the case in subsistence agriculture. Gross margin (GM) by definition is the difference between the gross farm income (GI) and the total variable cost (TVC).

That is GM = TGI - TVC the gross margin of the major crops of the studies area can be determined on per hectares of land cultivated by the respondents during the cropping season.

The total gross income (TGI) and the total variable cost (TVC) of 168 respondents in the study area. Shows that the different between the gross farm income (GI) and total variable cost (TVC) is equal to gross margin where (GM). = TGI-TVC.

AGM = TGI - TVC

n n TGI

= N8,518,700

Where TVC = N5, 516,300 GM =

8,518,700 -5,516,300 = N3, 002, 400

AGM = TGI -TVC

n n AGM

$= \frac{8,518.700}{168} - \frac{5, 516,300}{168}$

= N50,706.55- 32,835. 12 =N17, 871.43

The gross margin analysis is useful in comparing the profitability of alternative farm plan. The result of the gross margin shows that TGI of the respondents is N8, 518, 700 while TVC is N5, 516, 300. Therefore, the Gross

Margin (GM) of the major crops produce by 168 respondents is N3, **002,400.00** while the average gross margin (AGM) is N17, **871.43.**

The average gross margin(AMG) result shows that farmers has benefited on the improved farming techniques, this indicate that the profit that farmers are making after harvest has impact on their out put as the farmers income increases the standard of living of peasant farmers is also transformed in term of possessions of good houses, transportation facilities and other social amenities. Gross margin analysis is very useful planning tools that can be use by the farmers to compare to their profitability during the cropping season.

**4.21 Correlation Analysis:**

The correlation analysis was used to examine the relationship between the number of visit by the extension worker with the output of the respondent (farmers) in the study area. The result of the correlation analysis revealed about 0.5 at 1% level of significance, this shows that the correlation of x and y is significant, thereby indicating that the programme of extension visit has impacted positively on the out put of farmers in the study area.

**4.22 Regression Analysis:**

The linear regression equation for the study is express as Y=25976+4404.x as shown on the Table 4.23. **Table 4.23 Regression Analysis of the Study**

| Function form | predictors | Coef. | St.dev. | T. Ratio | P |
|---|---|---|---|---|---|
| Linear | constant | 25976 | 46476 | 5.56 | 0.00 |
| | x | 4404.1*** | 657.7 | 6.70 | 0.00 |

Were s =32672,R-sq =21.3%,R-sq.(edj) =20.8%

The linear regression result shows that there is a significant relationship between numbers of visit by the extension agent with the out put of farmers during the cropping season in the rural area. Therefore the regression result of R$^{o}$

shows that the number of extension visit has contributed 21%to the variation in the output of fanners.

This indicates the degree of relationship and the level of agriculture training received by the respondents (farmers) during the visit of the extension worker have made positive change or impact with the farmers out put in the study area.

Generally ,before the advent of extension programme most peasant farmers in Yola South Local Government Area, grow crops like sorghum ,maize, sweet potatoes, cassava, okro, leafly vegetable, onions, tomatoes, and pepper are grown on small scale basis in few location as mention in chapter one. That have perennial water resources in the study area. The farmers own 1-5 livestock of sheep, goats or cows. But as a result of the extension programme on crop production farmers are now able to plant high value crop with good yielding ability, more youths were also employed as vocation job, while more virgins land was put under cultivation. This have fetched more money for the farmers, while farmers that own livestock have rose to a certain level, this indicated as an improvement to the ability of farmers to own more livestock which can be disposed of when the need arises, this serve as local bank to the farmers. Cash and equipments loan packages was also introduce to farmers as micro finance loan by NACRDB and other voluntary organization, water pump which is a critical factor for dry season fanning was also made available by ADADP and UBRDA to assist fadama farmers for dry season farming. As a result of this intervention, farmers income have increase positively. Ownership of some basic property, such as farm equipment and other asset are eminent that farmers are able to excel as profit that they acquired during the cropping season. This indicates that the standard of living of the peasant farmers in the rural area has been transformed in term of possessions of good houses, transport facilities, farm implement and other social amenities.

This could be conclude that programme of extension service has impacted positively with the out put of farmers in the study area.

# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Summary of Findings

The study has examined some of the impact and problems of extension programme on crop production in Yola south local government area of Adamawa State. The research was primarily aimed at investigating the effect and constrains that is militating against the adoption of the extension innovation on crop production by peasant farmers in the rural area, the study was conducted by using structured questionnaires as the main instrument for data collection, as sample size of 180 peasant farmers were randomly selected from the two district of the local government area, where 168 administered questionnaires were retrieved from the respondents. Base on this analysis of the data colleted, the following major findings were made. The result of the research revealed that 54.76% of the farmers surveyed are males, while 45.24% are females. These indicate that sex does not affect or hindered the adoption of the extension innovation on crop production in the area.

The finding also shows that 77.45% of the farmers were in their middle age and the farmers cultivated 0.5-5.5 and above hectares of land and rear 1-10 head of either cattle, sheep or goat or both. While 79.16% of the farmers are adaptors of extension innovations, about 68% had formal educations i.e. 14.27% have attended primary school, while 20.30% of the farmers had post secondary education and 44.64% engage on farming activities as their primary

occupation.

The study also discovered that 44.05% of the respondents used both family and hired labour in their agricultural activities while the large proportion of 79.16% of the respondents had adopted two or more of the agricultural techniques demonstrated by EAs. The result of the SPATS demonstration revealed that about 24% and 14% of the contact farmers adopted the use of recommended fertilizer and herbicide application respectively. While the

percentage of yield difference before and after the extension innovation shows that 20.69% and 20.60% of maize and rice production graded the highest yield increase on crop production in the study area.

The finding also revealed about 89% of the revenue income of the respondents range from N10,000 to N50,000. while 13.69% of the respondents earned less than Nl 0,000 per cropping season. This indicate that the amount realized by the respondents from the sales of farm produces have not solved their farm and family problem.

While on the attitude of farmers toward the extension programme or services rendered by the EAs in the villages shows that 22.26% and 7.14% of the respondents agree and strongly agree with the programme of extension towards the development of the rural area. While 30.95% of the farmers constituted the disagreement with the service of the extension workers and 17.26% remained undecided.

On staff strength, the extension strategy is always concern with the low productivity of the peasant farmers in the rural area, therefore to improve the quality of the life of the rural farmer enough and qualify extension staff are needed for effective mobilization, but due to over strength and stress of EAs over the vast area in the villages and large number of the families they have to cover limit their effectiveness in the field.

The research also revealed that the large proportion of the respondents. Who adapted the improve practice demonstrated had used the application of fertilizer and herbicide, while the low percentage of the non adaptors might be due to perceptions of the farmers on some improve practices where the farmers might be thinking that the practice are not technically in relation to their culture and other environmental factors. While the result obtained from gross margin (GM) analysis shows that the Average Gross Margin (AGM) income of farmers is N17, **871.43** during the cropping season.

This shows that the income profits of the farmers per cropping season has increase significantly as farmers are planting improved crops with high yielding

ability as a result of extension visit. The correlation analysis, of r is 0.461 at 1% level of significant. Thereby indicating that there is relationship between the extension visit with the out put of farmers in the study area. While the Regression result of the study $R^2$ shows that extension visit has contributed 21% to variation in the out put of the farmers, that is to say the linear regression shows there is

relationship between the numbers of extension visit with the farmers out put during the cropping season.

This implies that if the farmers knowledge on improved practices is increased, they will adopt more of those new extension practices, since the extension programme is a process that bring about improvement in a systematic way, through careful planned in an organized programme system.

This is in line with the World Bank policies, i.e. rural development is a strategy designed for the peasant farmers in the rural area Ogbonna (2004). The farmers also suggest that drastic change of the present extension situation should be considered by the authority concerned, if not only little progress can be achieved. 5.2 **Conclusions**

This research is conducted primarily to examine the attitude of agricultural extension programme in Yola South Local Government area towards their work and the community they serve as a major factors influencing their functional effectiveness in the field. The change agent (CA) attitude affect not only how he teaches farmers, but also what the farmers learn, the way he learns it, the value he give to the learning and the influence that learning has upon his life on and off the farm. Therefore, in order to arrive at conclusion in responses of the problems and the effect of extension programme on crop production, the researcher headed by analyzing the result of respondents, from the primary to secondary data in attempting to proved or disapproved the hypothesis of the study. From the analysis of the data one can now conclude that effective extension services in agricultural sector faces problems and challenges from the data presentation and findings, it is inevitable to hear that more extension workers would have leaved

the job of extension services for other places if they have the opportunity. This is because of their views which centered mostly on poor management policies of the extension organization, the Ministry of Agriculture in the state and the local government council.

The studies found that there was a very high level of dissatisfaction among the adopters and non adopter farmers on agricultural extension techniques, because they felt that the condition of the extension workers in the field made it difficult for farmers to adopt other agricultural innovation, they complained mostly on the problems of extension workers are facing in the cause of their assignment. While other complained of the inability of the state and the local government council to back the agricultural extension programme with adequate and timely supply of farm inputs such as improved seeds, fertilizer and modern agricultural equipment. It is therefore the responsibility of agricultural organization and the state government to be aware of these factors and utilize the information source from farmers which would help increase the adoption of agricultural innovation in the rural area. (Paul 1984) observed that improved food supplies together with basic services such as health, education would not only improve the physical well being and quality of life of the poor, but will also enhance their productivity and contribute to their traditional economy.

In addition to problems above the adverse effect of poor attitudes and the inadequate training on staff performances were further confounded by other situational factors which the respondents listed as slow advancement on the job of extension in the study area, these are lack of adequate transportation, lack of essential office equipment, field demonstration tools and inadequate supply of farm inputs for farmers to alleviate their problems in term of crop production.

However, the result of the research findings also found that Fadama n programme and ADADP had assisted farmers to form group of 15 to 25 people, a total of 191 farmers user group were form in Yola South local Government area, through which ADADP extension unit and local Fadama desk office (LFDO) channel all the advisory services on technical and input supports to fanners to

enhance their productivity, at the beginning of each farming season. Extension staff and farmers training were organized by ADADP and advisory services of Fadama II programme to provide participant with the latest innovation in agricultural production, the state and local government provide improved seeds to small farmers group. Were, 1200 metric tonnes of assorted fertilizer, 3,796 litres of agrochemical and 181 Sprayers were distributed to farmers in the study area to support their production activities between the year 1996 - 2007. and all brand of fertilizer were sold at Nl, 850 per 50 Kg or bag, were all of the inputs attracted 40% subsidy, while the extension agent were provided with input such as improved seed, fertilizer and herbicides as an inputs kid for SPATS demonstration. On farm operation drudgery was provided to group of farmers by Fadama n in order to improve the efficiency of crop production in the area, 86 animals traction with ox-plough were also disburse to 22 groups of farmers in the study area between the year 2004 - 2006 as a result of this intervention wet season crop production has increase from 1 .Omillion metric tonnes to 1.5 million metric tonnes, in the state, since the inception of 1999 political administration (ADS MO A, 2006). Therefore, to enhance sustainability future intervention should be made to address the identify problems and constraint in order to achieve the set programme objective of extension programme, the intervention shall focus mainly on capacity building, farmers empowerment and utilization of farmers group as organize group of producers for disbursement of farm inputs and Unking them with a reliable sources of input and micro credits institutions. The size of farm and social participation of the farmers have also contributed to the changes in the rural area. Although peasant farmers having large farm and membership in more organization or association adopted less number of improved practices on crop production, this might be due to the fact that when fanner have a large farm they need more credit or inputs to adopt the packages of extension practices, but as a result of that credit might not be easily available to the extent they required.

Therefore, the results of these researches are in line with the findings of the other studies in Nigeria and Africa. The low percentages of the non-adopters might be due to the perceptions of farmer on some of the new practices, were the farmers might be thinking that some of the recommendation packages are not sound technically in relation to the soil, climate condition and other related factors in the study area.Therefore, these aspects need further investigation and if required, the packages should be changed to suite the condition of the region and farmers in the study area.On factors concerning communication and socio-economic characteristics of the farmers more efforts should be made by the extension personnel to educate farmers to increase their knowledge through radio and television i:e more radio programmes should be made to broadcast the extension packages on crop production. Extension literatures such as leaflet and posters should be prepared and distributed among the rural farmers.

Finally, further investigation should also be carried out to measure the level of adoption of the improve practices by the farmers who had participated in the extension programmes between two and four years ago to see whether the years of participation has a lasting effect on the adoption level of farmers after that long period of participation.

**5.3 Recommendations:**

Based on the findings of this study, the following recommendations were made in order to accelerate the adoption of extension innovation on crop production in Yola South Local Government Area. The suggestions are as follows:

1. On the problems of the ineffectiveness of extension programme in rural development; staff training which appears to be the most important area of consideration if positive action can be taken to improve the extension services in the rural area, particularly on crop production the farmers felt that proper role perception and appropriate professional attitude and right teaching behavior can be acquired through sound training, mass literacy campaign should also be encouraged with a view of educating the peasant farmers so as to make the work

of extension easier. This will enlighten the farmers on the importance of agricultural extension programme on crop production.

2. Frequency and quality of extension visit should be increased through funding and provision of adequate facilities, agricultural input and the supervision of extension agents, so that majority of farmers can become more and better informed with regards to extension innovation particularly on crop production.
3. Modem farming equipment should be made available to facilitate agricultural activities at a subsidized price to farmer at the right time and in sufficient quantity, that is before the beginning of the new farming season.
4. Institution of higher learning and various research institutes being the sources of technical information should be given special consideration as regard to the provision of technical equipment for research purpose. While, the federal and state government should also considered in allocating funds to the mandated national Agricultural research institutes, to be used specifically for the screening and development of suitable varieties of crop and equipment.
5. Infrastructures such as schools, good road should be provided with the reach of peasant farmers in order to acquire skill knowledge and experience in extension innovations and agricultural practices. Good roads when provided will reduce the high cost of transportation that is predominantly encountered in the village by peasant farmers. The state and local government should embark on rehabilitation on various irrigation projects and as construction of dams, wash borehole, tube wells etc, to encourage more crop production in the rural area during the dry season. The provision of infrastructural facilities could go a long way in solving the problems of adoption of modern fanning techniques and self reliance in the rural areas.
6. Farmers should be helped with loans or credit facilities by government or credit institution. The loan should be implemented

vigorously by providing enough funds and ehminating undue restriction and condition on small farmers credits so as to enable those who wish to hire labour operate efficiently.

7. Formation of Young Farmer Club (YFC). This is to encourage the youth to have interest in agriculture and if possible take up agriculture as a vacation job. Ahmadu Bello (1960) state that "we must try to inculcate the attitude of mind which a breeds of love of the soil of our region, a heritage we must do all we can is to preserved for posterity and to teach the children that there is nothing inferior in being a farmer".

8. Rural project programmes as well as management system to take account of women roles in agricultural produce on simple technology for farms use and home making.

9. Use of local leaders - the use of local leaders as a legitimate authority, is very important in extension programmes, leadership is the keystone upon which an extension service is build, no extension agents can do the job he is expected to do without the use of local leaders. The use of local leaders will help the extension worker to win the confidence of the farmers, failure to get the confidence of farm farming family may be the principle obstacle to success in extension programme.

10. Formation of cooperative association. Farmers should try and form cooperative organizations in order to solve their major problems in simpler way. (Awolowo, 1977). Revealed that "we shall organize our farmers into large cooperative farming settlement and assist them to engage in modern agriculture using appropriates modern equipment and techniques, these cooperative shall form the core of few community which we shall refer to as optimum communities that is (opticom).

In conclusion, solving the problems of poor attitudes in our extension services lies in providing effective professional training for field staffs and farmers, because there is no single and easy solution to the problems of ineffective extension services in the rural areas. Staff training

appear to be the most important area in which positive action can be taken to improve the extension services.

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## APPENDIX 1

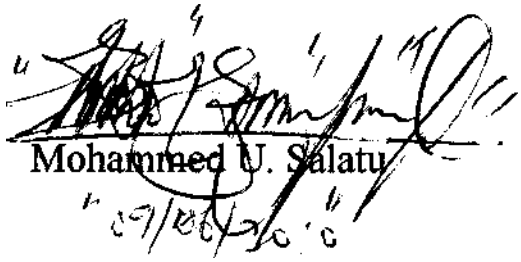
## QUESTIONIARE

Federal University of Technology, Department of Geography P.M.D. 2076, Yola. Sir/Mai.

I am an M,sc student of Rural Development of the above name institution conducting a research on the topic "An assessment of Agricultural Extension Programme on the farmers output". A case study of Yola South Local Government Area, Adamawa State.

Please assist in completing the attached questionnaire. The information that can be obtained or sought in this research is strictly and absolutely confidential and will be used exclusively for the research purpose.

Thank for yours anticipated cooperation.



APPENDIX II QUESTIONAIRE

INTRODUCTION

**Questionnaire on assessment of the impact of agricultural extension programme on crop production in Yola South Local Government area of Adamawa State**

Please tick ☐ or fill space provide where necessary.

**SECTION A**

**(1) personal information**

a. Name of Local government of the respondent.....

b. District area .....

c. Village/Ward .....

d. Sex (Gender) Male ☐ Female ☐

**(2) Marital State**

a. Single ☐ b. Married ☐

c. Widowers ☐ d. Divorced ☐

**(3) Age of the respondents** ..... Years

**(4) Educational Status**

a. No formal education. ☐ b. Primary School education ☐

c. Secondary School Education ☐ d. post secondary education ☐

e. Other (Please Specify).....

**SECTION B FARMERS ACTIVITIES**

**(1) What is your primary occupation**

a. Farming ☐ b. trading ☐

c. Civic servant ☐

d. Other(Please specify) .....

(2) **How do You Join the Farming Activities**

a. Through Parent b. Through Relation

c. Through Educational Background and Experience

(3)For **how long have you been farming ..... years**

**(4) What type of farming do you practice?**

a. crop Production I I b. livestock Production

c. Mixed Production

d, Othertype of Production (Specify) .....

**(5) How many hectares of land did you cultivate last year?**

| S/N | Crop grown | No. of Hectares | Output in lOOkg/b |
|---|---|---|---|
| a. | Maize | | |
| b. | Rice | | |
| c. | Guinea corn | | |
| d. | Millet | | |
| e. | Groundnut | | |
| f. | Bambaranuts | | |
| g- | Cowpea | | |
| h. | Other specify' ..... | | |
| | | | |

**(6) How do you till your farm before planting?**

b. With ox-plough

c. Communal Labours

a. With tractor b. Hands/Manual labour

(7). **Do you family assist you on your farms?**

**a. Yes b. No**

**(8). If yes, kindly fill in the table below.**

| Farm operation | Males | | | females | | |
|---|---|---|---|---|---|---|
| Land clearing | Number of people engage in the operation | Number of Days work during the season | No of hours worked per day | No of people engage in the operation | No of days worked during the season | No of hours worked per day |
| planting | | | | | | |
| weeding | | | | | | |
| Herbicide/ pesticide | | | | | | |
| Fertilizer Application | | | | | | |
| Harvesting | | | | | | |
| Other operation | | | | | | |

**(9). Did you use hired labour on your farm?**

Yes
No

**(10)If yes, kindly fill the table below.**

| Farm operation | Male | | | | Female | |
|---|---|---|---|---|---|---|
| Type of operation | No of people engage in the operation | No of days worked during the season | No of hours Worked | No of people Engage in the peroration | No of days worked during the season | No of hours worked |
| Planting | | | | | | |
| Weeding | | | | | | |
| Herbicide/pesticide application | | | | | | |
| Fertilizer application | | | | | | |
| Harvesting | | | | | | |
| Other operation | | | | | | |

**(11) Which variety of seed did you plant?**

a. Improved seed ☐ b. Hybrid improved ☐

c. Local Seeds ☐ c. both improved ☐

**(12). How did you acquire your farm Land?**

a. Purchase ☐ b. Rent ☐

c. family Land ☐ e. Borrowed ☐

**(13) What was the source of your farm input?**

a. ADADP ☐ b. Private Agric Stores ☐

b. UBRDA (gerio) ☐ d. Neighbours Farme ☐

e. Previous Crop ☐ f. Other Specify.....

**(14) Do you have access to farm credit?**

Yes ☐ No ☐

**(15). If yes what is the Source?**

a. Commercial Bank ☐ b. NACRDB ☐

c. Fadama 11 Programme ☐ d. Cooperative ☐

e. Town Credit ☐ f. Other Specify.....

**(16) What is your cost of production for 2006 cropping season. Fill on inputs used**

| Crop types | Seeds | | Herbicide/ Pesticide | | Ferterlizer plication | | Cost of Ploughing | | Cost of supplementary ding | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Crop type | Quality (k.g) | Amount (N) | Quantity (Ltrs) | Amount (N) | Quantity (k.g) | Amount (N) | Tractor hiring | Animal Traction | 1st weeding | 2nd weeding | Transplantation |
| Rice | | | | | | | | | | | |
| Millet | | | | | | | | | | | |
| Groundnut | | | | | | | | | | | |
| Sorghum | | | | | | | | | | | |
| Barbara nut | | | | | | | | | | | |
| Cowpea | | | | | | | | | | | |
| Cassava | | | | | | | | | | | |
| Maize | | | | | | | | | | | |
| Other crops | | | | | | | | | | | |

SECTION C

Information on the implication of extension programme on farming activities

**(1) Do you have contact with extension agent?**

Yes ☐ No ☐

(2) **How frequent do they visit you?**

a. Weekly ☐ b. Every after two weeks ☐

c. Every Mouth ☐ d. Once in a growing season ☐

e. Once in a year ☐

(3) **What is your various media of communication on farming activities?**

a. Extension agent ☐ b. friends and neighbours ☐

c. Radio ☐ d. Town Crier ☐

e. Agric Shows ☐

(4) **What is the leading method of communication?**

a. Individual method ☐ b. Group method ☐

e. Mass method ☐

(5) **Are you a contact farmer of ADADP?**

a. Yes ☐ b. No ☐

(6) **Are other farmers aware of the available improved practices?**

**a.** Yes ☐ b. No ☐

**(7) What motivate you to adopt extension practice?**

a. Simplicity ☐ b. economically viable ☐

c. All of the above ☐ d. others specify ☐

(8) **What are the extension practices available for farmers in the study.**

| **Extension Practices** | **Available techniques** | **Tick the one you adopted** |
|---|---|---|
| a. introduction of fertilizer application | | |
| b. seed dressing chemical (Apron plus ) | | |
| c. the use of recommended herbicide | | |
| d. Timely planting | | |
| e. Plant population (Spacing) | | |
| f. The use of storage chemical (Acetylic dust or EC) | | |
| g. Introduction of improved Cockerel | | |
| i. preservation of vegetables | | |
| j. Introduction of Agro Forestry e.g. Acacia SPP | | |
| k. control of soil erosion with Vetiva grass | | |
| l. Preservation of fish | | |

**(9) Have you ever seen a demonstration plot (SPATs)**

a. Yes ☐ b. No ☐

(10) **If yes, what was the extension package of demonstration?**

a. the use of improved seed ☐ b. plant spacing ☐

c. timely planting ☐ d. the use of recommended herbicide ☐

e. the use of seed dressing chemicals ☐

f. Others specify.....

**(11) Is there any improvement in your output as a result of new practice?**

a. Yes ☐ b. No ☐

**(12) If yes, what is the average output in Kg/bag do you obtained per hectare every year?**

| S/N | Type of crop | Output for 2000 | Output for 2001 | Output for 2002 | Output for 2003 | Output for 2004 | Output for 2005 |
|---|---|---|---|---|---|---|---|
| a. | Rice | | | | | | |
| b. | Maize | | | | | | |
| c. | Sorghum | | | | | | |
| d. | Groundnut | | | | | | |
| e. | Millet | | | | | | |
| f. | Bambara nut | | | | | | |
| g. | Cowpea | | | | | | |
| h. | Other specify | | | | | | |

**(13) If the above data is true, then state your crops yield data for 2006.**

| Crops | Farm yield (kg) | Quantity consumed (kg) | Quantity given as gift (kg) | Price/100 kg (N) | Total amount Realized from farm crop sale (N) | Cost of transport from farm to house | Cost of transport from house to Market | Time of produce sales (month) | Other cost... |
|---|---|---|---|---|---|---|---|---|---|
| Rice | | | | | | | | | |
| Maize | | | | | | | | | |
| Sorghum | | | | | | | | | |
| Groundnut | | | | | | | | | |
| Millet | | | | | | | | | |
| Bambara nut | | | | | | | | | |
| Cowpea | | | | | | | | | |
| Other specify | | | | | | | | | |

**(14) Are the extension officers really available to disseminate the new extension package?**

a. Yes ☐ b. No ☐

**(15) If yes, indicate the following**

| YEARS | No. of SPATs established | No. of contact group form | No. of agent in the study area | No. of women group form |
|---|---|---|---|---|
| 2001 | | | | |
| 2002 | | | | |
| 2003 | | | | |
| 2004 | | | | |
| 2005 | | | | |

**(16) What rating do you give the assistance rendered by extension workers in your villages?**

a. Excell☐ b. Very God☐

c. Good ☐ d. Average ☐

e. Poor ☐

**(17) Are you a member of any cooperative organization?**

a.yes ☐ b. No. ☐

**(18) If yes then in what ways is the cooperative organization useful to you? Speciafy.....**

**(19) Do you intend to expand your farm next year?**

a. Yes ☐ b. No ☐

**(20) If no, give reason .....**

SECTION D

Information of problems and suggestion of the Farmers

(1) **What are the Basic Problems you are Facing in terms of your** agriculture activities?

a. lack of fertilizer
b. lack of Improved Seeds
c. lack of Loan Facilities for farming
d. lack of market facilities
e. lack of Feeder roads
f. lack of modem farming equipments
g. lack of Irrigation facilities and other farming incentives
h. Other specify.....

**(2) Mention any other problems associated with the adoption of extension practices in the study area?**

**Specify**.....

**(3) In your own view assess quality of life of rural farmers?**

a. Good ☐ b. Moderate ☐

c. Poor ☐ d. very Poor ☐

**(4) Are you satisfied with the present effort of the government administration in improving the quality of life of rural farmers in the area of agricultural production?**

a. Yes ☐ b. No ☐

**(5) If No how do you think the government can assist to improve the quality of live her farmers?specify**.....

**(6) Suggest possible solution to the problem associated with the agricultural extension programme?**

.....

.....

.....

.....

# APPENDIX III

```
Worksheet size: 100000 cells

MTB > Correlation C1 C2.
```

## Correlations (Pearson)

```
Correlation of X and Y = 0.461

MTB > Regress 'Y' 1 'X';
SUBC>   Constant.
```

## Regression Analysis

```
The regression equation is
Y = 25976 + 4404 X

Predictor       Coef      Stdev   t-ratio       P
Constant       25976       4676      5.56   0.000
X             4404.1      657.7      6.70   0.000

s = 32672     R-sq = 21.3%     R-sq(adj) = 20.8%

Analysis of Variance

SOURCE       DF           SS          MS        F       P
Regression    1  47868071936 47868071936    44.84   0.000
Error       166 1.77200E+11  1067469312
Total       167 2.25068E+11

Unusual Observations
Obs.      X        Y       Fit  Stdev.Fit  Residual  St.Resid
  1    14.0    20000     87633       5841    -67633    -2.10R
  8    16.0    75000     96441       7051    -21441    -0.67 X
 14    12.0    11000     78825       4689    -67825    -2.10R
 19    16.0    71000     96441       7051    -25441    -0.80 X
 28    18.0   104000    105249       8292     -1249    -0.04 X
 38    15.0    86000     92037       6441     -6037    -0.19 X
 69    15.0   102000     92037       6441      9963     0.31 X
 70    14.0   208000     87633       5841    120367     3.74R
 93    12.0   220000     78825       4689    141175     4.37R
156     4.0   110500     43593       2840     66907     2.06R

R denotes an obs. with a large st. resid.
X denotes an obs. whose X value gives it large influence.

MTB >
```