AN ASSESSMENT OF THE GRADUATES OF COLLEGE OF AGRICULTURE, LAFIA-NASARAWA STATE AS EFFECTIVE EXTENSION AGENTS

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A thesis submitted to the Postgraduate School, Ahmadu Bello University, in partial fulfillment of the requirements for the award of the degree of M.Sc. in Rural Development,

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DECLARATION

I hereby declare that this thesis has been written by me and that it is the record of a research work carried out by me. It has not been presented by any other person for the ward of a higher degree before. Where reference to other published and unpublished work is made, such has been clearly indicated or acknowledged.

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CERTIFICATION

This thesis entitled AN ASSESSMENT OF THE GRADUATE OF COLLEGE OF AGRICULTURE, LAFIA NASARAWA STATE AS EFFECTIVE EXTENSION AGENTS BY Patrick Ashimoka Osabo meets the regulation governing the award of the degree of M.Sc Rural Development of the Department of Geography, Ahmadu Bello University, Zaria, and is approved for its contribution to improvement of Agricultural Innovation adoption.



Chairman, Supervisory Committee — 10/11/98 Date



Member, Supervisory Committee — 10/11/98 Date



Head, Department of Geography — 10/11/98 Date



Dean, Postgraduate School — 2/11/99 Date

DEDICATION

This work is dedicated to my son, Ehanwulo (Cain Akoshi) who came to this world at the period I was struggling to compile this work. I wish him long life and prosperity. Ehanwulo, further challenges are yours.

ACKNOWLEDGEMENT

I wish to express my gratitude to all the people who have contributed directly or otherwise in making this work a success.

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- Patrick Ashimoka Osabo

ABSTRACT

This Study is an attempt to assess the effectiveness of the graduates of the College of Agriculture, Lafia in Nasarava State as extension agents.

In doing this, the opinion of the graduates and that of their employers and farmers were sought using structured questionnaires.

The survey conducted revealea that the graduates of the College were satisfied with the training they hava received from the College and also found the training received to be relevant to their Jobs. Most of the graduates employers also considered the graduates training to be adequate, also most of the farmers testified that the graduates have good human relations and considered extensior services renderea by the graduates to be of help for them to adopt agricultural innovations.

But the research discivered that 50.7% of the farmers were not satisfied with the graduates interaction with them, hence 53.4% of them patronized their fellow farmers for information of improved agricultural practices, despite the fact, that the graduates use various channels of communication to disseminate information of improved agricultural practices to them (farmers).

The study finally recommends the following for the improvement of the training of the graduates and for the effectiveness of their performance as extension agents.

More funds should be made available to the College, the number of agricultural colleges should be reduced. There should be a definite policy that would create gainful employment for the graduates. Farmers should have access to rural banks and there should be constant refresher courses for the graduates and their instructors.

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CHAPTER ONE

I N T R O D U C T I O N

1.1 BACKGROUND INFORMATION AND THE RESEARCH PROBLEM.

Nigeria is blessed with abundant natural and human resources for self-sufficiency in food production. Yet at the moment, the Nation's rate of agricultural production is dangerously lagging behind its population growth. Several reasons have been advanced for the low pace of agricultural development in the country. Prominent among them are the use of crude implements by the farmers, their inability to obtain required inputs in the right quantity and at the right time and lack of credit facilities to purchase these inputs, even when they are available.

But according to Atala (1986) in an effort to increase agricultural production and income of the farmers in the country, the government and institutions of higher learning have been working continuously and increasingly on the problem of planned agricultural development which aims at revolutionizing agriculture through the introduction of different types of technological innovations. Efforts have also been directed towards raising farmers' awareness of recommended agricultural inputs and new practices, making these accessible

to farmers and persuading them to adopt the new input and practices. This follows the recognition that use of improved practices lead to increase in production, income and improvement in the standards of living of the farmers.

The programmes which government has pursued, alongside extension services, include the procurement and distribution of fertilizer project (1973), National Accelerated Food Production Programme (1973), Integrated Rural Development (1976), River Basin Development Authority (1976), Operation Feed the Nation (1978), Green Revolution Programme (1980), Directorate of Food, Roads and Rural Infrastructures (1986) and National Agricultural Land Development Authority (1982).

The attempt to introduce technical change to improve agricultural productivity of the small-scale farmers through the above programmes have made only modest success. The reasons advanced for the poor performance vary in accordance with the interest represented by particular commentators. Some claimed lack of users-participation in planning and execution of the programmes (Ariyo 1991). Another reason often advanced is the capital intensive nature of the project and sophisticated technologies which they promote and which make the projects not to have a chance to benefit the generality of the rural farmers (Baba, 1984; Ariyo, ibid). Others claimed

dearth of education and skill at the farmers' level and failure in communication of improved agricultural practices to rural farmers as a result of the dereliction of duty of our extension agents, which led to low adoption of improved practices by the farmers (Atala, Abdullahi 1990).

The general conclusion from various investigations is that the non-adoption of improved agricultural practices in farming contribute to low agricultural production in the country. This result in such problems as inadequate food supply and poor conditions of living of the farmers. Such problems underlie the need to educate the farmers to adopt improved agricultural practices in order to improve their living conditions.

Improved Agricultural practices here refer to new ideas, techniques and methods or procedures that provide the means of achieving sustained increases in farm production and income of the farmers.

Several studies have shown that the adoption of a new innovation by an individual is not a sudden event but rather gradual. Thus farmers have to be aware of the innovation, develop interest in and try it. After being convinced of its credibility and feasibility, they will finally adopt it (Runcie, 1982; Rogger, 1971).

Thus farmers in Nigeria need to be persuaded and educated on a sustained basis to adopt improved agricultural practices if we really want to be self-sufficient in food production, reduce the incidence of hunger, poverty and improve the living standard of the peasant farmers.

The education and persuation of these farmers to take up improved methods can only be achieved through efficient and effective communication emanating from credible sources.

It is in the light of this that the then Plateau State Government established its College of Agriculture at Lafia in order to produce Agricultural middle-level manpower (technicians) at both National and Higher National Diploma levels (College Edict, 1987). The Students of the College follow the guidelines of the National Board for Technical Education (NBTE) - a body that is mandated to accredit the programmes of agricultural Colleges in Nigeria - goals, are trained as agricultural technicians capable of applying modern farming techniques in direct agricultural production (NBTE 1989 ND Agricultural Technology Syllabus). The aim of the students' education is to be achieved by training them to learn how to:

1. Plan and lay out all sizes of crop, animal and fish farms;

2. employ modern techniques in the rearing of different types of livestock on large scale;

3. employ modern techniques in land preparation, planting, management and harvesting of food and cash crops;

4. Process and storage of all types of agricultural produces;

5. communicate all the above techniques and practices to rural farmers through active involvement in extension services. This particular aim of the training form the main focus of the study.

Both the National Diploma and Higher National Diploma courses are structured to last for two years (i.e. four semesters) with a three to four month period of supervised student Industrial Work Experience Scheme (SIWES) incorporated.

In specific terms, the students of Plateau State College of Agriculture, Lafia are trained in these skills subjects relevant in functional terms to the goals and objectives of the training at the National Diploma level.

The subjects offered are specified below:-

1. Agricultural Extension and Management which consists of the following subjects:-

a) Elements of Agricultural Economics

b) Rural Sociology

c) Farm Management

d) Agricultural Extension

2. Animal Science which consists of the following subjects:-

a) Sheep, Goat and Swine production

b) Animal Nutrition

c) Poultry Production

d) Genetics and Breeding

e) Beef and Dairy Production

f) Basic Fisheries Technology

g) Introduction to Animal Health

3. Engineering Science which consists of the following:-

a) Basic Principles of land surveying

b) Basic Workshop practice

c) Farm Power and Mechanization

4. Plant Science which consists of the following subjects:-

a) Principles of Crop Production

b) Farm practices

c) Annual crops

d) Crop Protection

e) Agro-Climatology

f) Introduction to Forestry

g) Tree crops

h) Horticulture

i) Statistics and Field Experimentation.

5. Soil Science which consists of the following subjects:-

a) Pedology and Soil Survey

b) Soil fertility and Crop Nutrition

c) Soil and Water Management

6. Other subjects include:-

a) English Language

b) Mathematics

c) Government

d) General Studies

The above listed subjects are being offered with the essential aim of preparing the graduates of the programme for employment as Agricultural Technicians in a wide range of skilled occupation with institutions such as Agricultural Development Projects (ADAPs), Ministries of Agriculture, Department of Agriculture at Local Government level as well as to be self-employed.

While substantial sums of money have been spent on training these students at the College, little or nothing has been done to find out how the graduates of the College are performing in their various

occupational skills for which they were trained since leaving the College. Such a feed-back is necessary for the College to be able to improve its training programmes to meet the needs of the potential target groups (farmers). This research endeavour is intended to fill this gap.

1.2 RESEARCH AIM AND OBJECTIVES

The general aim of this research is to assess the performance of the graduates of the Plateau State College of Agriculture, Lafia (hereinafter referred to as the College) in disseminating modern agricultural practices to rural farmers with a view to provide a feedback which the College may use to improve its training programme.

This aim will be pursued by means of the following specific objectives:-

1. to sample the opinion of the graduates of the College on the relevance of their agricultural training experience to their present jobs;

2. to sample the opinion of clienteles of the graduates (farmers and employers) about their effectiveness as extension agents.

3. to determine the channels of communication adopted by the graduates in disseminating agricultural information to farmers;

4. to develop an inventory of the types of improved agricultural practices communicated to farmers.

5. to assess the farmers constraints to the adoption, as well as the constraints the graduates themselves face in communicating new agricultural ideas and techniques to the farmers, and outline the suggestions of both groups for improvement.

1.3 RESEARCH QUESTIONS

As far as possible, the study would seek to answer the following key questions regarding the graduates communication of improved agricultural practices to rural farmers.

1. What preparation for their expected role in agricultural production did the graduates of the College receive?

2. What are the perception of the graduates regarding the relevance and effectiveness of their training in preparing them for their jobs.

3. What are the improved agricultural practices the graduates communicate to the farmers?

4. What are the channels of communication adopted by the graduates?

5. What are the benefits the farmers derive from the innovations they have adopted?

6. What is the level of job satisfaction among the graduates?

7. What are the obstacles faced by the graduates in carrying out their jobs?

8. What are the farmers' constraints to adoption of the improved practices?

9. What are the opinions of the employers and the farmers as regards the performance of the graduates on their jobs?

10. What are the suggestions of the graduates, employers and the farmers for improving the communication and adoption of agricultural innovations?

1.4 SIGNIFICANCE OF THE STUDY

Year in year out, College of Agriculture, Lafia, which was established since 1977, has been admitting and graduating students with the

award of the National Diploma Certificate to serve as agricultural middle-level manpower (technicians). But up to date, no study has been carried out to assess the performance of these graduates in the real work situations and to obtain from the graduates and their employers as well as the farmers, their clienteles, a realistic picture of their view, opinion and attitudes regarding the agricultural training and performance of these graduates. Thus information gathered in this study will help towards:

i) creating an awareness of the strength and weaknesses of the training programme and of the graduates' performances;

ii) serve as a tool for up-dating and improving the existing training of students in the College so that they can perform better after graduation.

1.5 SCOPE AND LIMITATION OF THE STUDY

The graduates of the College by the nature of their training are supposed to take up employment in any part of Nigeria and are also qualified to be self-employed. But due to limited resources available to the researcher, the focus of this study will be limited to the graduates who are employed within the then Plateau State, that is, those who are employed either in Agricultural Development

Projects (ADPs), Ministry of Agriculture at either State or Federal level, and the Department of Agriculture at Local Government level and other related institutions.

1.6 RESEARCH METHODOLOGY

1.6.1 Sources of Data

Both primary and Secondary data were used to generate information to meet the aim and objectives of this study. The Primary data were gathered through the use of questionnaire surveys, while secondary data were gathered from relevant literature materials such as journals and books.

1.6.2 Primary Data

For Primary Data Collection three sets of questionnaires (A-C) were designed. Questionnaire A was for farmers. It sought information about the opinions of the farmers on the role of the graduates as extension agents. Also sought, with the questionnaires, are the types of improved practices the farmers adopted; channels of communication they patronized, the constraints they faced in the adoption of agricultural innovations, suggestions for improvement of agricultural extension services.

Questionnaire B was for the employers of the graduates. It sought information from the employers

of the graduates about the training the graduates of the College have received, the performance of the graduates on their jobs, and suggestions of the employers for improvement of the training programme at the College.

Questionnaire C was for the graduates. It solicited the following informations:

a) general characteristics of the graduates surveyed.

b) their experience during training at the College, course studied and their perception of its relevance to their present jobs.

c) job performance and satisfaction of the graduates.

d) channels of communication frequently utilized in propagating agricultural innovations.

e. major constraints the graduates faced when discharging their duties.

f) their suggestions for improvement

1.6.3 Secondary Data Sources

The Secondary information used for this research mainly came from:

a) Academic Office of the College of Agriculture, Lafia, to get some information about the

graduates, particularly to confirm their year of graduation.

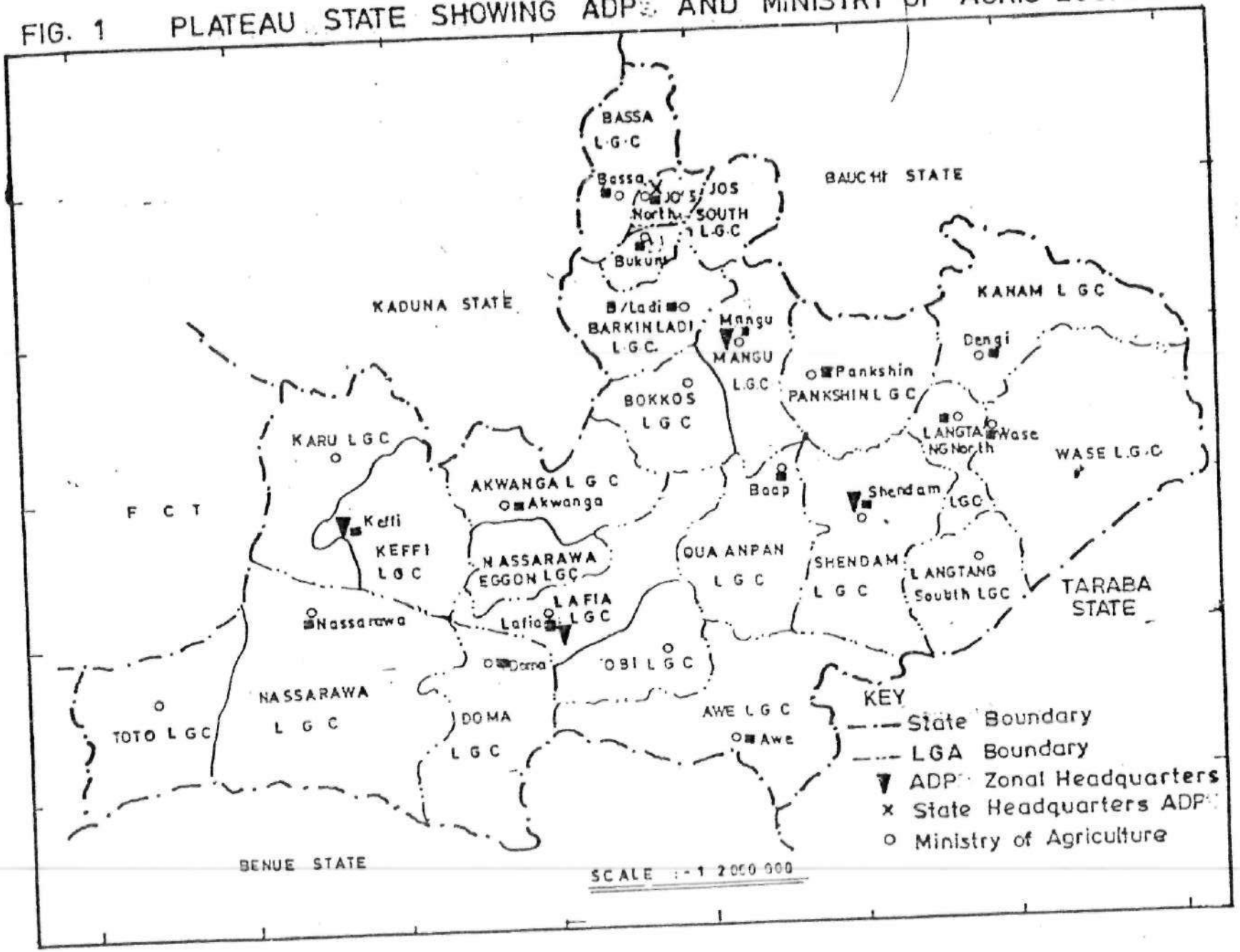
b) The libraries of the Institute for Agricultural Research, the National Agricultural Extension and Liaison Services and Geography Department at Ahmadu Bello University were also used to develop the conceptual framework for the study.

1.6.4 Sample Population and Sampling Procedures

The target population for this study are the graduates of the College, their employers and farmers who are the clientele of the graduates. The graduates and the employers' questionnaires were self-administered. And as a check on the self-administered questionnaire, personal interview was conducted alongside with the questionnaire. The questionnaire used to interview a sample of the farmers were administered by field assistants who were mostly secondary school leavers and indigenes of the study area.

Farmers questionnaire was administered in eleven Local Government Areas (LGAs) of the former Plateau State. The state is divided into four ADPs zones namely Northern, Southern, Eastern and Western zones (figure 1). The selection of the Local Government Areas was purposely done and was based purely on the geographical differences, which culminated in the production of different crops

FIG. 1 PLATEAU STATE SHOWING ADP'S AND MINISTRY OF AGRIC



between the northern and southern parts of the state. Five LGAs therefore were selected from southern Plateau Agricultural Development Project (PADP) zone of the state and six from the northern zone.

The actual villages surveyed in each LGA was randomly selected using hat-and draw method. The number of farmers interviewed by local government areas and village was to some extent based on the farming households of the village. The number of farmers interviewed by local government areas and villages are presented in Table 1 below:

Table 1: No. of farmers interviewed by Local Government Area and Villages:

S/No	Local Government Area	Village	No. of Farmers	Percentage
1.	Awe	Keana	15	10.0
2.	Barkin Ladi	B/Ladi	14	9.5
3.	Bassa	Rukuba	12	8.0
4.	Bokkos	Bokkos	10	6.7
5.	Doma	Doma	17	11.3
6.	Jos South	Fobour	10	6.7
7.	Lafia	Agyaragu	14	9.3
8.	Mangu	Gindiri	15	10.0
9.	Nassarawa Eggon	N/Eggon	16	10.7
10.	Obi	Obi	17	11.3
11.	Pankshin	Pankshin	10	6.7
			150	100.0

Source: Field Survey, 1995

A systematic sampling technique was used to administer the questionnaire in the selected villages, that is, after obtaining the permission of the village head, interviews were carried out in every 5th household on every street or path. On the whole a total of 150 questionnaires were returned properly completed.

Graduates' questionnaires were administered to the graduates working with Plateau Agricultural Development Projects in the Northern and Southern zones of the State, those working with the Ministry of Agriculture and those working with the Department of Agriculture of the selected LGAs as well as those working with other related agricultural institutions within the state.

One hundred graduate questionnaires properly completed were analysed. Table 2 below is the number of graduates interviewed by organization.

Table 2: No. of Graduates interviewed by Organization.

	Organization	No. of Questionnaires
1.	PADP	49
2.	Ministry of Agric.	19
3.	LGAs	29
4.	Non Governmental Organizations	3
	Total	100

Source: Field Survey, 1995

Employer questionnaire was administered to ADPs, LGAs and Ministry of Agriculture as well as other non-Governmental institutions where the graduates were working. Only the most senior officers were interviewed. This is because it was considered that it would be this category of officers who would be in better position to assess the graduates effectively. Thus eleven Directors of Agriculture in the eleven Local Government Councils were interviewed and also eleven Coordinators of the selected Ministries of Agriculture were interviewed. In case of the PADP, each of the eight Heads of Departments in the two zones of northern and southern were interviewed. But it was discovered that some of the departments do not have graduates from the College.

A total of thirty eight (38) officers were interviewed for this purpose. Below in table 3 is the number of the officers interviewed by the organization.

Table 3: No. of Officers interviewed by their organization.

	Organization	Number of Officers
1.	PADP	13
2.	Ministry of Agriculture	11
3.	Local Government Council	11
4.	Non-Governmental Organizations	3
Total		38

Source: Field Survey, 1995

1.6.5 Data Analysis

The data collected was analysed with the aid of the computer statistical package (SPSS) at the Institute for Agricultural Research, Ahmadu Bello University, Zaria. Simple descriptive statistics such as frequency distribution was used to organise and summarise the data. In addition the chi-square test method was used to test for significant association among some variables which would throw some light on the factors which may have a bearing on the performance of the graduates of the College in communicating Agricultural innovations to the farmers.

CHAPTER TWO

LITERATURE REVIEW

2.1 THE CONCEPT OF INNOVATION

Roggers and Shoemaker (1971) defined innovation as an "idea, practice or object perceived as new by an individual". There are different types of innovations based on the adoption unit; thus we have innovation that can be adopted by an individual regardless of the decisions of other individuals in a social system. Of course the decision maker may be influenced by others in his system, but the adoption decision is largely an individual one. The decision of an individual to adopt hybrid corn, and a housewife's adoption of birth control pills are examples of optional decisions of innovations adoption.

There are certain innovations which require prior acceptance by the majority of the social system/members before individual adoption can be made. An individual may wish to adopt, but he cannot do so until others join him. For example flouridation of a city's drinking water. There are some innovations which are adopted by a group decision that forces acceptance even upon those who are unwilling. Government population policy of limited number of children per couple could be an

example of a forced innovation adoption.

2.2 THE PROCESS OF INNOVATION DIFFUSION

2.2.1 The Concept and Process of Diffusion

According to Roggers (1969) diffusion is the process by which an innovation spreads. That is, the diffusion process is the spread of a new idea from its source of invention or creation to its ultimate users or adopters.

The diffusion process comprises of four critical elements (Roggers and Shoemaker (op cit)). (i) the innovation (ii) its communication through various channels (iii) Overtime (iv) among number of a social system. Thus the process then involves the transmission of information about the innovation from an originating source to the ultimate or potential users.

A farmer's decision about whether or not to adopt a recommended agricultural practice has been recognised to occur over a period of time in stages rather than instantaneous. That was why Baal and Roggers (1967) in their studies of adoption of innovation said adoption process is not a snap decision but a mental process on the part of the individual over a period of time. William et al (1984) referred to adoption process as the mental process which an

individual goes through from the time he hears of new ideas and is finally accepted. These definitions underscores the fact that upon hearing a new idea, individuals take some time to think over it before making a decision on whether to use it or not. The innovation adoption process, according to Roggers and Shoemaker (1971) can be divided into five stages:

1. The awareness stage: The adoption process starts with awareness. At this stage a person becomes aware of a new product or practice for the first time. He knows very little about any potential usefulness, or how it is likely to work for him, but if he is interested he will try to learn more about it.

2. The interest stage: The individual thereafter awareness becomes insterested in the new idea and seeks for more information. He then wants to know what it really is, what it will do, how it will work for him.

3. The valuation stage: Immediately after interest is kindled, he weights the prons and cons of the new idea. This is known as the evaluation or mental trial stage. Two major decisions are taken: (i) is the idea a good one? (ii) Is it good for him?

4. The trial stage: At this stage, the individual decides to try the innovation on a small scale to determine its utility for him. This is because the individual now wants to know more about the practice, but he is to use little first and more later, if everything works out well. After initial successful trial, he may adopt the innovation for sustained use, and of course he may choose not to use it.

5. The adoption stage : At this stage, an individual decides that the new practice is good enough for full scale use.

2.2.2 Spatial factors which aid innovation Diffusion

Haggerstrand (1953) was the first geographer to develop a model to describe the diffusion of an innovation over-space. He based his model on the acceptance of various new agricultural practices in an area of central Sweden and showed how the innovation spread outwards from an initial centre. In this model, he empahsised the importance of neighbourhood effect as it affects the decision of a potential adopter. He had noticed that the spatial development of many innovations diffusion process seems to be characterised by the addition of new adopters around the original nuclei of introduction of the innovation. This contagious growth, has been called the neighbourhood effect; that is, the probability of a new adoption is highest in the

vicinity of an earlier one and decreases with increasing distance.

According to Mirchaulum (1976) Haggarstrand basic idea is that an innovation adoption spread like a ripple on water, thus waves of diffusion move from a central point outwards in space.

Although Haggarstrand model of neighbourhood effect of spread of innovation over space was considered outstanding, there are some factors which aid or retard its workability, because it depends on the interpersonal contacts among the people. The limiting factors can be physical or social.

Mabogunje (1980) pointed out that physical features such as mountains, deserts and large bodies of water, to the extent that they greatly limit interpersonal contacts among people, often act as barriers to spatial diffusion process. The point stressed by Mabogunje here is that neighbourhood effect of spread of innovation over space can only be effective if there are interpersonal contacts among the people, but in a situation where physical features such as mountains, desert and large water bodies limit the contact, it would affect the diffusion process over space. The limitation imposed by physical barriers to spatial innovation diffusion was noticed in the work of Mirchaulum (1976) of ox-plough innovation diffusion in Longuda district of former Gongola State,

whereby the Longuda Plateau constituted a barrier for rapid diffusion of innovation to hill settled people who then adopted the ox-plough innovation last.

Another physical factor of spatial innovation diffusion is the availability of transportation network, as road transport enhances movement of people thereby increasing the interactions between them. This in turn improves information flow which is vital to the diffusion of an innovation. That was why Mabogunje (1980) pointed out that transport network has the effect of not only improving accessibility but also of increasing the contact and information fields of individuals. Therefore, for an innovation to diffuse space wide within a community, there must be adequate transport network to facilitate it.

Factors which aid spatial innovation diffusion need not be limited only to those of physical origins, but also social. That was why Edward et al (1968) said for spatial innovation diffusion to be effective within a country it would depend on the national network of social communication which includes all aspects of interpersonal contact, such as in schools, voluntary and political organisations. He further said spatial diffusion studies revealed the existence in every community of areas of resistance or actual barriers to the spread of specific types of innovation. The resistance is often the product of social attributes

which makes it difficult for potential adopters to appraise correctly the value or importance of an innovation. Such attributes can be educational, religious, ethnic, class or income group in origin.

Another factor that can aid spatial innovation diffusion is the settlement pattern of a community or a village. That is to say, the ease for an innovation to diffuse depends to some extent on the structural organization of the settlement. Therefore, innovations can be spread faster in a well organised settlement which enhances the flow of information than in settlements which are isolated and disorganised. Mirchaulum (op cit) noted this point in his research of ox-plough diffusion process in Longuda, which he said "the locational pattern of the settlement might have also influenced the pattern of ox-plough innovation diffusion in Longuda district".

In conclusion, although spatial innovation adoption spread like a ripple on water, there are some factors which aid or retard its spread.

2.2.3 The Attributes of Innovations which help in the Adoption Process

Agricultural innovations very tremendously in their inherent characteristics which to a large extent influence the decision of the farmers to adopt or not to adopt them.

Rothman et al (1976) enumerated six variables which might affect adoption of an innovation.

1. Relative advantage: This is expressed in terms of economic profitability, that is, an innovation with low initial cost, low perceived risk, a decrease in discomfort, effort and time saving and with immediaty of reward can be positively adopted.

2. Compatibility: An innovation that is consistent with the existing values, past experiences and needs of the receiver. That is, the compatibility of a new idea as perceived by the members of a social system is positively related to its rate of adoption, but if an innovation is not compatible with the socio-cultural values and beliefs of the adopters such an innovation may not be easily adopted.

3. Complexibility: If an innovation is perceived as relatively difficult to understand and use, or difficult to demonstrate such an innovation may not be easily adopted.

4. Triability: This is the degree to which an innovation may be experimented on the instalmental basis. If an innovation can be tried on small scale such an innovation can be adopted easily than an innovation that is not divisible or cannot be tried on small scale.

5. **Accessibility:** The physical or financial accessibility of an innovation to the adopter can influence its adoption. An innovation that is readily accessible can be adopted faster than unaccessible innovation.

6. **Communicability:** The ease of which an innovation can be explained, demonstrated or experimented, the faster the rate of its adoption.

2.2.4 Socio-economic factors which Influence Innovation Diffusion

Most of the research studies on the agricultural innovations diffusion, have found out that the following factors have either positive or negative influence on adoption.

Age: Roggers and Shoemaker (1971) reported that there is inconsistent evidence about the relationship between age and innovativeness. It would seem however that there is either a negative correlation between age and adoption of improved farm practices or else no significant relationship at all. Ali (1977) found age not significant related to adoption and in fact Voh (1979) found the relationship to be weak and negative but Atala's (1980) study found age to be positively and significantly related to adoption, indicating that younger farmers adopt more agricultural innovations than older farmers.

Education: Voh (1979) and Bogunjoko (1983) found a positive and strong relationship between adoption and level of literacy. Atala (1980) and Ariyo and Nwachukwu (1990) also found a strong association between the two variables.

But Ali (1977) in contrast to these, reported no positive significant relationship between formal education and adoption.

Farm Size: Basu (1969) in a study on relationship of farmers' characteristics to adoption of recommended practices in four villages of Western Nigeria, observed that farm size was associated with adoption of farm pradtices. But Atala (1980), Voh (1979) found no significant association of farm size with adoption of farm practices.

Social Participation: Involvement of an individual in the organization that exist in his community is generally considered an important variable in adoption of new practices. Ali (1977); Atala (1980) found social participation to be statistically significant to adoption of innovation. Ariyo (1993) also found membership of small, production cooperative groups a strong factor in adopting new crops.

2.3 THE ROLE OF INNOVATION DIFFUSION IN DEVELOPMENT

The term development in the past decades was

seen mainly in its economic sense. That is, a process of quantitative expansion not qualitative change. But it has been found that development is more than just growth in gross domestic product or rise in per capita income.

The concept of development has therefore been given multiplicity of meanings and connotations simply because there has been no agreement in this generic term.

Seers (1969) argued that development should be seen more than just an economic phenomenon but in the context of societal welfare. To him, the issue of development can be summed up in three key questions:

(i) What is happening to poverty?

(ii) What is happening to inequality?

(iii) What is happening to unemployment?

The decline from high to low levels of these societal ills can be measured as development.

Todaro (1977) conceived development as multi-dimensional process involving changes in infrastructure attitudes and institutions as well as the acceleration of economic growth, the reduction of inequality and eradication of absolute poverty. This author argued on the same line with Seers. Both Scholars' contentions centred on the issue of societal welfare

which to them should be the yardstick to measure the indices of development in any given society.

The concept of development therefore relates not simply to a process of quantitative expandion, but to one of qualitative change. Thus, economic and social development is conerned with fundamental transformations within an economy or a society. It involves the spread and acceptance of new ideas and new ways of doing things. In short it is inextricably tied up with the diffusion and adoption of innovations. That was why Friedman (1969) said development is an innovative process leading to the structural transformation of social system. The process of development can be conveniently described as the introduction and diffusion of successive waves of innovations, in functional and in geographic space (Hermansen, 1972). According to Petersen (1971) self-sustained economic development in a region cannot take place without the continued adoption of innovations in the region and that the policies for regional economic development will to a large extent be policies for the inducement of innovations diffusion.

2.4 INNOVATION DIFFUSION AND RURAL DEVELOPMENT

In the past, up to the end of the second national development plans, rural development in Nigeria was seen as synonymous to agricultural development. But

it has been discovered that rural development is more than just agricultural development, but a total transformation of the rural areas. That was why Mabogunje (1980) sees rural development as "concerned with the improvement of standard of living of the low income population living in rural areas on a self-sustaining basis, through transforming the socio-spatial structures of their production activities". The deduction one gets from this explanation revealed that rural development is more than just agricultural development, but equally involves mobilization and modernization of their mode of production to attain total upliftment in their standard of living.

Therefore, it is of great interest at this point to state out clearly the objectives of rural development in any society. According to Lele (1975), these goals include:

1. To improve the quality of life or well-being of the masses of people by ensuring that they have security and that their basic needs such as food, shelter, clothing and employment are met;

2. To make rural areas more productive and less vulnerable to natural hazards, poverty and exploitation and to give them a mutually beneficial relationships with other parts of the regional, national and international economy;

3. To ensure that any development is self-sustaining and involves the masses of the people. Thus involves among other things encouraging self-reliance and public participation and;

4. To ensure as much as possible local autonomy and little destruction should be done to existing traditional ways of life as possible.

Viewing the objectives of rural development in these ways, one way out is to disseminate agricultural innovations information to rural areas. The importance of agricultural information to rural areas was stressed by Yazidu (1983) in his paper titled "the importance of agricultural information to the rural farmers", which he defined agricultural information as proven idea, technology or any information which comes as a direct result of research activity or government policy designed to educate the farmers on policy issues which would enhance their farming activities. He went further to enumerate six important agricultural information as follows:

1. Agricultural information provide ideas for the improvement of crops and livestock of the rural farmers.

2. Agricultural information provides best quality seed or livestock which the farmers can use for maximum returns.

3. It assists farmers to combat pest and diseases of crops and livestock.

4. It educates the farmers on agricultural policies of the government which affect production of their crops and livestock.

5. It helps to encourage farmers to stay in the rural areas by assisting them to have gainful employment.

6. It teaches farmers new skills which emanate from co-ordinated research efforts.

In the opinion of Sarah (1987) rural societies can be transformed by injecting into them leading innovations forces. Thus the ability of that society to effectively adopt relevant innovations would eventually lead to changes from traditional way of life of people concerned, and a rise in the standard of living over time. Her view is on the premise that agriculture innovations play a crucial role in developing rural areas.

However, the importance of agricultural innovations information for rural development can only be effective or useful to farmers when they are communicated to them through appropriate and understandable channels. That was why Bryness (1979) stated that improved agricultural practices are of little use unless they are communicated to the farmers using

the appropriate channels that can easily reach them. In the contribution of Shutt (1974) in Chitta (1990); he said that in many countries particularly Nigeria information about improved farm practices rarely reach the users (farmers), this has therefore affected the productivity of farmers.

2.5 THE ROLE OF AGRICULTURAL EXTENSION AGENTS IN PROMOTING INNOVATION DIFFUSION

The Agricultural extension agents have crucial roles to play in promoting innovation diffusion in the rural areas. This can be done through educating and communicating agricultural innovations information to rural farmers.

The education of the farmers in this case according to Nwachukwu (1990) is concerned with educating them not just in letter and words or grammer or language but in the techniques of raising better crops and animals in a better combinations. Under this programme the extension agent works with rural farmers and helps them to have solutions for their own needs and wants, he is concerned with making the people understand, accept and put new agricultural knowledge to work.

Agricultural extension education plays a vital role in the process of the improvement of farming in the rural areas. It is an aspect of the functional education which most scholars have advocated as more

relevant to the development of the rural areas (Coomb and Ahmed, 1974). Functional literacy or education which according to Oyedejo and Adiedu (1982) is that literacy that is of immediate use to the recipient, especially in his work, but it could be useful to him in other ways, depending upon his predominant needs. As such, this educational system helps farmers in innovation adoption, increase their production and income.

Communication of Agricultural innovations information to farmers is also essential in promoting innovation diffusion. What is very essential in this regard is the source of the message. Therefore, the main influence on acceptance, is the perceived credibility of the source. There extension agents need to know the subject matter and present it well. Williams et al (1984) in their studies on the major elements in communication, stated that communicator is the key factor in influencing the effectiveness of the communication.

The credibility of the communicator will determine the attitude of people to him. His credibility depends on two major factors:

i) The extent to which he is perceived as a source of valid assertions or his technical competence.

ii) The trust people have in him and his

competence

The primary purpose of communication in agricultural extension is to achieve a desirable change in the farmer's behaviour. The success of the extension agent in this direction is determined greatly by his credibility as perceived by the farmers and his ability to communicate well. In order to accomplish this, the extension agent must not only have useful and valid information to communicate to farmers, he must also have the understanding of the farmers with which he wants to communicate and persuade to accept what he has. He also needs to have adequate technical knowledge and skills in dealing with his clientele farmers.

2.6. FARMERS' SOURCE OF INFORMATION ON IMPROVED AGRICULTURAL PRACTICES.

Nigeria farmers seek for information on improved agricultural practices from various sources.

As according to Yazidu (1973) in his study of radio as a means of communicating agricultural information to farmers in northern Nigeria, found radio as the most important source of agricultural information in both rural and semi-urban areas. Kidd (1968) also reported that the number of farmers that know the extension agent as a source of information was low and greatest percentage of contact was by

farm radio programme. This was also confirmed by the studies of Petel and Ekpere (1978) where 90% of the farmers listened to the farmers' programme on the radio. While Williams (1969) identified the followings as the sources of communication used frequently and regularly by farmers in Nigeria in obtaining information on new practices in farming. Extension agent (38%), radio (31%) and fellow farmers (15%), Farmers' organization meeting (6%), family or relation (5%), while little use was made of demonstration plot which accounted for (3%). But according to Atala, (1986), plot demonstration is a more credible techniques for disseminating improved agricultural practices to farmers than any technique. While in the study of Effionayi (1973) in Ondo provinces he ranked highly the use of posters (88%), agricultural newsletter/bulletin (72%), radio (60%) and cinematography (49%) as a means of disseminating information to farmers. This finding seems to be contrary to the findings of Chitta (1990) of socio-demographic and communication profile of farmers in two local government areas of Plateau State which he discovered that friends/neighbours, televisions, group meetings, radio and farm visit were the frequent sources of communication adopted while, posters, demonstration plots, letter writing, extension publications and field days and tours were less used.

CHAPTER THREE

3.00 THE STUDY AREA

The study area which is Plateau State derives its name from the geographical landscape that dominates the area (Jos Plateau). The landscape of Plateau State rises steeply from 200 metres around the plains of river Benue in the south to an average height of 1,200m above sea level, on the Jos Plateau. There are great peaks like the Shere Hills (1829m).

3.01 LOCATION

The State is located in the middle belt region of the country. It covers an area of 54,232km^2 which represents 5.87% of Nigeria's total land area.

3.02 GEOLOGY

The whole of Plateau State is made up of two main geological formations. The Crystaline Metamorphic Igneous rock of the Jos Plateau to the Northern part of the state and the sedimentary rocks of the Benue valley to the south.

On the Jos Plateau of the State, the surface rocks and hills are composed of cambrain basement complex. The volvanic rocks of the area consists of basalt flows and cones made up of metasediments and older granite and undifferentiated igneous and metamorphic rocks.

These rocks are neither porous nor permeable, except where they are deeply weathered or have zones of weakness such as cleavages, joints, fissures and shelter belt.

Geomorphologically, this Plateau area of the State has long been subjected to chemical and physical weathering and has decomposed clays of varying colours from pure white to red and purple.

The lowland area of the state is made up of sedimentary rocks. It is made up of procambrian beds and are thought to be caused by series of cretaceous transgressions and regressions between the middle albanian and Maestritchian period (C.E.C. in Elabi 1987). They are thus entirely marine, comprising of shales, limestones, mudstones, siltones and occasional fine sandstones. The older rocks are folded and strongly compacted
while the younger ones are lightly folded and more porous. The sandstones are coarse grained, porous and consist of "coal seems" which are well jointed.

The lowlands form a continuous plain of about 104km wide, slopping gradually from the foot of the Plateau around the Mada Hills to river Benue.

The plain here is undulating and caped with isolated conical hills and the presence of Shales towards the Benue river.

3.03 SOILS

The major soil units of Plateau State belong to the broad category of tropicals ferruginous soils which are much thinner on the high Plateau but attain greater depths in the Southern parts of the state. There are also sizeable pockets of loamy soil of volcanic origin on the high Plateau. These soil groups respond quite well to fertilizers.

Soil erosion is a major environmental problem on the Jos Plateau. Tin mining in its hay days rendered some localities around Jos, Bukuru, Mangu and Barkin-Ladi more susceptible to soil erosion. Today, however, the soil erosion menace is being accentuated largely by overgrazing which has resulted in gullying along the numerous cattle paths which criss-cross the Plateau surface. The soil erosion problem is being tackled through several conservation measures.

3.04 CLIMATE

The state has two distinctive climatic conditions. It has a near temperate climate in its Plateau region, but a typical Guinea Savanna climatic condition in its lowland region.

On the whole, one can say the state cuts across three ecological zones, making her an Agricultural Botanical Garden in which virtually all the crops of agricultural significance in this country can be cultivated.

The three ecological zones are the southern Guinea Savannah, Northern Guinea Savannah and the near temperate climatic conditions of the Jos Plateau.

Depicting the general climatic condition of Nigeria, the state has specific period of warm and cold season as well as rainy and dry season.

In Plateau State, the mean annual temperature varies from the low land and scarpment areas to the highlands region. In the lowland region it is about 25°C while on the highland region it is about 20°C. The mean monthly air temperature is highest in March with an average maximum daily temperature of about 36°C and the lowest in December to January with mean monthly temperature of between 25°C to 26°C. On the whole the mean monthly range of temperatures are relatively large in dry months and small in the rainy season.

The rainy season lasts from March to October. Another feature of the rainfall is that it rises gradually from the month of March and reaches its peak in August and starts to decline into the dry season in the month of September. In terms of mean total annual rainfall, the Jos Plateau area has more than the low land region of the state. As the Jos Plateau region registers a mean annual rainfall of 1408mm, while the lowland region has mean annual rainfall of 1100 (Agboola and Hodder, 1983).

But the seasonality which characterises the rainfall pattern of the state in terms of duration and regimes of the wet season have significant impact on agricultural activities of the people of the state rather than the total annual rainfall.

3.05 VEGETATION

The vegetation cover of an area is a function of the climatic conditions and the nature of soils as well as human activities in the area; hence there is a dinstinction between the vegetation cover of the state on the Jos Plateau and lowland areas.

The vegetation of the Jos Plateau owes a great deal to the long period of human occupance and specifically to such activities as burning, agriculture grazing and mining. Indeed, much of the original vegetation had been cleared by the beginning of the 20th century. As during the earlier years of this century, woodland clearance was intensified as a result of (i) Tin mining activity (ii) A large influx of immigrants whose main cooking fuel was firewood. (iii) The movement of settlement from the hills to the Plateau surface following the establishment of peaceful conditions by the British.

But going by the climatic characteristics, the Plateau area must originally have had a vegetation cover of thick woodland or dry forest. Evidence of such vegetation still exists in the forest

reserve (such as the Naraguta forest reserve to the North of Jos) which where found arround the inaccessible hilly and rocky edges of the Plateau in the earlier years of British administration.

Of particular interest is the existence in these areas of plant species which are related to plant found on other upland areas in West Africa and East Africa.

The present day vegetation cover of the Plateau surface consist of short fallow grassland which is virtually treeless except for 20th century afforestation plantings of Eucalyptus and other species.

In the lowland areas of the state, the vegetation cover is typically of Guinea Savannah. The vegetation cover therefore posses the common characteristics of Guinea Savanna; which is sometimes called parkland savanna, because it is made up of the typical combination of tall grasses and some trees which gives it the appearance of a park. Although man's activities of burning and clearing has seriously distorted the actual vegetation cover of this area, hence most of the vegetation covers today is the secondary type.

Where the natural vegetation occurs it changes with seasons. Such that during the rainy season the grasses and leaves are fresh and green, but in the dry season they whither and die. In adaptation to

the climatic environment, some trees have thick barks, long taproots, some with few small leaves and do shed their leaves in the dry season in order to minimise loss of water by transpiration.

The types of economic trees found in this part of the state include shea butter, oilbean and locust-bean.

3.06 POPULATION/ETHNIC COMPOSITION

The provinsional figures of the 1991 National Census put the population of Plateau State at 3,283,704 comprising 1,645,730 males and 1,637,974 females. The average population density in the state is 61 persons per sq.km. Plateau State is a sparsely populated area when compared with the national population density of 96 persons per sq.km.

Population density still varies nonetheless among the 23 LGAs of the state. Jos north and south have a combined population density of 391 persons per sq.km. to become the most densely populated parts of the state. Awe and Nassarawa (including Toto) have the least density of 28 persons per sq.km. The rest of the state can be said to have fairly low population densities ranging between 41 and 125 persons per sq.km.

The high concentration of people in Jos North and South LGAs can be attributed to the attraction of mining, industrial and commercial activities

concentrated in and around Jos, the state capital. On the whole the low population densities of Plateau State is due to its rugged terrain and the extensive land-dependent nature of its rural economy.

On the ethnic composition, the population of the state is highly heterogeneous with over 57 ethno-linguistic groups. But is interesting to note that Plateau State is a model of multi-ethnic and multi-religious peaceful co-existence state in Nigeria. While most of the states have witnessed one major ethnic or religious upheaval or the other from 1960 to date, none has occured in Plateau State. It is also a state where there is no particular ethnic group that enjoys or claims to enjoy a monopoly of any sort. One however, find here a multiplicity of small ethnic groups that see and appreciate the needs for mutual cooperation for the survival and progress of the entire state.

Plateau State, therefore boasts of having the most friendly and peaceful atmosphere for cultural and industrial development in Nigeria.

3.07 AGRICULTURE

The agricultural economies of the developed countries of the world thrive on the production of crops and livestock for which their natural ecological environment provide for economic produc-

tion advantage (Dafwang 1991).

In Plateau State agriculture is the primary occupation of the people. The agricultural activities is largely subsistence with only a small production of the land devoted to cash crops. Land preparation and weeding are almost entirely carried by hand-hoe and harvested the same. Tractor ploughing service is not widely utilized either as as result of the rugged terrain of some parts of the state or other reasons in the areas where the terrain does not pose any threat to the tractor, such as thick forest cover, non availability of the tractor and high cost of hiring. Chemical fertilizer and rice offals are frequently utilized these days in place of organic manure such as farm yard manure and animal droppings (Field survey, 1995).

Due to favourable climatic conditions of the state, which made it an agricultural botanical garden in which virtually all the crops of agricultural significance in this country can be cultivated. The following crops are being cultivated in the state.

Cereals production

The major cereals produced in the state are: maize, guinea corn, millet and rice. Maize is not only a major food grain but also a "big" income earner. Rice is considered primarily a cash crop

by most rural farmers in the state.

Root Crops

Lafia and its neighbouring local government areas are the yam "basket" of Nigeria. Yam is the most widely cultivated food crop in the state. Cassava in the low land areas of the state in places like Doma, Obi, Lafia, Nassarawa-Eggon local government areas and Irish potatoes in the Plateau region of Jos, Bassa, Bokkos, Barkin-Ladi and Pankshin local government areas. It is interesting to say that Plateau State is the major producer of Irish potatoes in Nigeria because of the favourable weather conditions.

Other lesser known root crops that are widely produced but in much smaller quantities are cocoyam and sweet potatoes.

Legumes and fibre crops.

Groundnuts and cowpea are the most widely cultivated legumes in the state. Soyabean and beniseed are also being produced in the lowland areas of the state.

Vegetables:

These are grown year round in all parts of the state, but more particularly on the Plateau region. Tomatoes, onions, carrots and a wide range of leafy vegetables are the most well known.

Tree Crops

The main fruits grown are oilpalm, olive tree (a tilli) mangoes, oranges, pawpaw, cashew, bananas,

guava which can be found in all parts of the state. Mango and orange orchards are a common sight in all parts of the state. Olive trees (atili) locust bean trees and oil palm are taking proper care of on the farmland, while some grow widely in the uncultivated bush.

Livestock and Poultry. Estimates of livestock population in the state tend to vary from one author to another. However, Dafwang (1990), conducted a survey of rural poupltry production in the Lafia area and found that there were 1:4 sheep, 2.5 goats, 0.9 pgs, 1.1 duck and 19.6 chickens per household.

With the exception, of dwarf cattle (muturu) the local farmers do not normally keep cattle, but the nomadic or semi-nomadic fulani pastoralist run their herds through the state to make use of the grazing potentials of the state. Livestock, other than cattle such as goats, sheep, pigs and dogs are kept by several farmers.

3.08 AGRICULTURAL LAND ACQUISITION

Although the Land Use Act of 1978 has enthrusted all state land to the governor of that state to allocate to who wishes to use the land, uptill today most of the agricultural lands in the study area are acquired through five main sources: inheritance, rentage, purchase, gifts and lease.

In the state, lime many other states in Nigeria, agricultural land are generally held under permanent usufructuary rights, chiefly through acquisition by inheritance, pledge and lease. There is relative exclusion of land gifts (kyauta), and purchase as they can lead to permanent lose of right on land. Inheritance (gado) and pledge) jingina) remain the only two main media by which permanent ownership right of land can be maintained.

In the state in general, land is assumed to belong to the community for common benefit of the people in the community. Land is then enthrusted to the paramount chief in the community who is given the right to allocate land and to adjudicate in land matters. This is to say, the land is held in trust on behalf of the community by the Chief who in theory is the sole authority to dispose of land to individual family who needs land for agricultural purpose. The same power is also delegated to District Heads or village Heads. Migrants to the area normally borrow land from either individuals or the village Head or both; or can request for a piece of land from the Chief/Village Head (in case of land surplus area like Doma local government area) to farm. In general, uncultivated lands are under the control of the Chief or Village Head, so that he can lease some portions to anybody in need, but dares not sell it out.

The issue of lending, hiring or pledging out land has generated a lot of conflict in the state

these days, owing to the fact that some of the farmers who borrow, hire or are pledged land sometimes lay claim over it, usually after the death of the owner. This issue of land dispute, like in other parts of the country causes a lot of concern these days.

3.09 AGRICULTURAL EXTENSION SERVICES

The crucial role of agricultural extension service in effective agricultural development is recognised in Plateau State. For this reason, agricultural extension services are being undertaken by the Ministry of Agriculture, Department of Agriculture at local government level and by the Agricultural Development Project (ADP) of the state.

But from all indications, the agricultural extension services of Plateau State Agricultural Development Project (PADP) is the most laudable one in the state. This sub-programme of PADP was established to provide agricultural extension services to the farming families in the state.

In Plateau State the ratio of farm families to PADP extension agent is as follows:

TABLE 3.1: FARM FAMILIES RATIO OF PADP EXTENSION AGENT.

Table 3.1: FARM FAMILIES RATIO OF PADP EXTENSION AGENT.

YEAR	NUMBER OF FARM FAMILIES	EXTENSION AGENT RATIO
1987	165,000	1:2538
1988	266,000	1:1330
1989	310,000	1:937
1990	327,000	1:991
1991	342,000	1:997
1992	342,000	1:1003
1993	342,000	1:1107
1994	296,000	1:1035

Source: PADP Agricultural Extension Sub-Programme Implementation Completion Report 1995

Idachaba, (1985) stated that Plateau State appears relatively endowed with extension staff when compared with other states of the federation. And it could be because of this endowment of extension staff of the state and other reasons that warranted the PADP to be rated the best performing ADP in the country in 1992.

In principle, it is recognised that the extension agent to farm families ratio is one of the basic criteria for assessing the performance of an extension system under the training and visit system (T & V).

It is often stated that the most critical stage of the technology transfer process is the effectiveness of communication between extension agent and farmers.

The number of visits an extension worker makes to a farmer is an index of the level of contact between extension agents and farmers.

According to PADP agricultural extension sub-programme implementation completion report of 1995 the ADP extension agents made an average of 39,508 per year contact between 1987-1994.

The then Plateau Agricultural Development Project (PADP), like any ADP in the country, adopted the unified extension service (UAES) since 1991. This unified extension service has the following objectives.

1. To encourage farmers to adopt new technologies through the establishment of small plot adoption technique (SPAT) trials.

2. Embark on training and visit system of agricultural extension as a means of teaching farmers new crop, livestock, fisheries production technologies.

3. Create awareness among farmers on the importance of agro-forestry in conjunction with the state forestry project.

4. Improve income and living standards of rural women through dissemination of proven technologies of food crop production and nutrition and other aspects of women in agriculture.

5. Popularise the use of animal drawn ridgers among farmers as a support service to agricultural mechanization.

6. Encourage irrigation agriculture on fadama lands as well as rural water supply through the exploitation of shallow ground water by means of wash bore/shallow tube wells and centrifugal pumps to boost crop production.

7. Provide media support to extension by providing audio visual aids for training and extension activities. Provide farmer radio and T. V. programme, operation of mobile training unit filted with public address system.

With these objectives of PADP unified extension service the farmers in the state stand a better chance to increase their yields significantly and consequently improve their living standards.

3.10 EDUCATIONAL DEVELOPMENT

Education has been accorded a priority position in the development drive of Plateau State. Apart from numerous primary and post primary schools spread across the state, there are five tertiary institutions owned by the State Government. These are: College of Agriculture, Lafia, School of Preliminary Studies Keffi, College of Education at Akwanga and Gindiri as well as a State Polytechnic at

Barkin Ladi. Other tertiary institutions owned are School of Nursing Vom and Jos. Apart from these tertiary institutions owned by Plateau State Government, there is a Federal University at Jos, a Federal College of Education at Pankshin, a Federal Polytechnic at Nassarawa and a Federal School of Forestry at Jos.

For proper harnessing of the agricultural potentials of the state, the following agricultural training/research institutions were established in the state to produce the needed middle level manpower.

Table 3.2 Agricultural Training Institutions in Plateau State

Name	Location	L.G.A.	Date of Establishment	Remark
Farm Training Centre	Gidan Adamu	Shendam	1966	State owned
Horticultural Training School	Gangnum	Langtang South	1980	State owned
College of Agriculture, Lafia	Lafia	Lafia	1977	State owned
Home Economics Training Centre	Riyom	B/Ladi	1977	State owned
Soil Conservation Training Centre	Pankshin	Pankshin	1970	State owned
College of Forestry	Jos	Jos	1958	Federal owned
(Forestry Research Institute) Federal School of Soil Conservation	Jos	Jos	1969	Federal owned

Source: Field Survey, 1985/

Table 3.3: Agricultural Research Institutions in Plateau State

Name of Institution	Research Emphasis	Head-quarters	Station in P/ State
National Veterinary Research Institute	Veterinary Research and Training	Vom/ P/State	Vom
National Root Crop Research Institute	Irish Potatoes Unit	Umudike	Vom
Forestry Research Institute of Nigeria	Improvement of Forestry Products and Forestry training	Ibadan, Oyo	Jos

Source: Field Survey 1995.

3.11 THE STATE OF RURAL INFRASTRUCTURE IN THE STUDY AREA.

3.11.1: Road Network

In Plateau State, only Jos the State capital and Local Government Headquarters have tarred roads, while the rural roads are untarred, hence seasonal. This poor state of rural roads in the study area makes most movements to be on foot and bicycle along foot paths and at best by motorcycles along narrow [illegible] roads. The common vehicular transport along this poor roads are trunks and buses which can survive [illegible] of the road. The distance of travel are relatively short and not frequent. The ultimate effects of this poor transport problems to the rural dwellers is stressed by Olatunbosun (1975, pp.77) which he said causes marketing inefficiencies and

reduces rural income.

This nature of rural roads in the study area to some extent hinders effective extension delivery services. This is because for effective extension services there must be contact between the agents and the farmers through all season motorable roads.

3.12.2 Portable Water Supply

Apart from air, water is the most essential element to man. In the study area pipeborne water is only found in the towns. Rural dwellers only depend on water supply from open wells, rivers and streams which are untreated, and this causes them sickness such as guinea worm, dysentary, diarrhoea and a lot of other water related diseases.

To supplement the critical water supply situations in the rural areas of the state, open and concreted wells and boreholes are constructed by the government but most of these water sources are not quite reliable and adequate to cater for water needs of the rural dwellers in the state. For this reason, most of the extension agents would prefer to remain in the urban areas, and to pay irregular visits to farmers which makes their impacts less felt by the farmers.

3.13.3 Banks and Financial Institutions

In the former Plateau State many commercial banks

have branches scattered all over the state. Banks such as Bank of the North, Lion Bank, First Bank, Nigeria Agricultural and Cooperative Bank, Community Bank, Peoples Bank etc, but most of these banks are located in the town. Even the people and community banks which by principle are meant to serve the rural people are mostly located at the local government headquarters. The only financial institution available to the rural dwellers are loans from friends or relatives. On the other hand they can enter into cooperative thrift such as "adashe" in order to solve their problems. Farmers indeed need credit facilities to enable them purchase farm inputs if they are to adequately adopt modern farming practices, but their inaccessible to bank loans is a serious setback to agricultural innovation adoption.

3.12.4 Agro-Service Centres

With government intention to assist agricultural production in the state, agricultural inputs such as fertilizers, pesticides, herbicides and improved seedlings are provided at subsidized rates. The provision of agro-service centres where these inputs could be procured is very important. In then Plateau State agro-service centres are fairly located within each local government area, but they are extremely poorly stocked with the required agricultural inputs, such that their impacts are

not felt by the farmers. Farmers rather purchase their farm inputs from open markets which are located far off from their settlements at exobitant prices. The result of unavailability and unaffordable prices of these essential inputs to farmers make most of them to continue with their traditional methods of cultivation. There is then the need to stock the available agro-service centres with enough quantity of farm inputs for the farmers to purchase.

3.12.5 Market Infrastructure

Market infrastructure in the rural areas of the state are inadequate. Most of the markets are small and local, they operate mostly on weekly basis. The demand and supply of the rural market in the study area are small, which are attributed to inaccessible nature of the rural areas. As Peter (1960) puts it:

> "Market grow because of improvement in transportation and communication. Market is originally local and small. Demand is restricted by the cost of getting goods out of the village and ignorance of whether they can be sold outside, supply is limited by the cost of getting goods into the village, and bought for outside".

Therefore, with the bad nature of the rural roads in the state, the frequency of market attendance decreases with distance. The implication

is that the farmers find it difficult to market their products; since they cannot travel far off to where there are demands for their products, likewise the consumers cannot come to them for the fear of the costs involved so the middlemen who can make their way into this remote areas pay less to the farmers on account of higher local transport cost, and in turn demand much higher prices from the urban consumers on account of scarcity of the goods in the market, hence the middlemen accumulate high profits for themselves.

3.12.6 Electricity Supply

Due to application of National Electric Power (Plc) economic viability standard in the provision of electricity in the State. Few villages are supplied with diesel powered engines by the rural electricity board. The remaining vast rural areas have no access to electricity supply which serve as a driving force for the extension agents to remain in the rural areas to perform their duties, hence there is the need to provide this essential amenity in the rural areas of the state to assist both the extension agents and the farmers in their activities.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSIONS

4.1 CHARACTERISTICS OF SAMPLED GRADUATES OF THE COLLEGE

This section examines the general characteristics of the graduates of the Plateau State College of Agriculture, Lafia. The general characteristics highlighted include the age, sex, marital status, name of the organization/ministry where currently working, year of graduation from the College and present employment.

Table 4.1 Age of the Graduates

Age category	Frequency	Percent
Less than 20 years	3	3
21 - 30	54	54
31 - 40	36	36
41 - 50	6	6
Over 50 years	1	1
Total	100	100

Source: Field Survey, 1995

Table 4.1 shows the modal age category among the graduates surveyed to be 21-30 years. This represents 54% of the respondents. Only one of them is over 50 years of age. The mean age of the respondents is 40 years. The modal age category of this graduates conform with the very active period in their life to perform their duty as extension agents.

There are 77 males and 23 females among the graduates surveyed. In addition, with respect to their marital status 64% are married, 35% are single, while only one was a divorcee.

Table 4.2 Distribution of Graduates Surveyed by Organization

Organization	Frequency	Percentage
ADP	49	49
Ministry	19	19
L.G.C.	29	29
Non-Governmental	3	3
Total	100	100

Source: Field Survey, 1995

As can be observed in Table 4.2, the majority of the graduates surveyed work with government or government parastatals. Only 3% indicated working with non-governmental agricultural organizations. This could be because government agricultural

organizations are a larger employers of labour than non-governmental organizations.

Table 4.3 Year of Graduation of the Respondents

Year	Frequency	Percentage
1990	26	26
1991	16	16
1992	19	19
1993	21	21
1994	18	18
Total	100	100

Source: Field Survey, 1995

Table 4.3 shows the year of graduation of the surveyed graduates. Although the College was established in 1997, the researcher limited himself to 1990-1994 graduates of the College. This is with the assumption that most of the early graduates of the College by the time of the data collection might have undertaken one course of training or the other from other institutions of learning since after completion from the College.

4.2 SOCIO-ECONOMIC CHARACTERISTICS OF THE FARMERS

The socio-economic characteristics of farmers considered include age, number of wives, number of children, educational level, number of farms, farm

size, land tenure system and type of labour employed on the farm.

Table 4.4 Age of the Farmers Interviewed

Age category	Frequency	Percentage
Less than 20 years	5	3.4
21 - 30 years	39	26.0
31 - 40 years	45	30.0
41 - 50 years	29	19.3
over 50 years	32	21.3
Total	150	100.0

Source: Field Survey,1995

Table 4.4 shows the modal age category of the farmers to be 31-40 years. However, the bulk of the farmers fall between 21-40 years of age. This conform with the very active period in the life of farmers in developing countries where farming depends essentially on manual labour.

Table 4.5 Distribution of Farmers by Number of wives

No. of Wife	Frequency	Percentage
None	4	2.7
1	62	41.3
2	47	31.3
3	14	9.3
4	19	12.6
Over 4	4	2.7
Total	150	100.0

Source: Field Survey, 1995

Table 4.5 above shows the number of wife(ves) by farmers in the study area. Although 41.3% of the farmers practice monogarmy, majority of them (46%) are polygamous, that is, having more than one wife. The mean number of wives of the farmers is two.

Most of the farmers in the study area have more than one wife because in a developing country like Nigeria, more wives mean more labour on the the farmers, and in addition many wives, would result into more children bearing, which would serve as a source of labour on the farmers.

Table 4.6 Number of farmers' children

No. of Children	Frequency	Percentage
None	4	3
1 - 4	42	23
above 4	104	69
Total	150	100

Source: Field Survey, 1995

Table 4.6. shows the distribution of the surveyed farmers' children. Only 28% of them have between 1-4 children.

Table 4.7 Educational Levels of the Farmers

	Frequency	Percentage
Did not attend school	99	66
Never completed Prim. School	17	11.3
Completed Primary School	13	8.7
Never completed Sec. School	9	6.0
Completed Secondary School	6	4.0
Post-Secondary Training	6	4.0
Total	150	100.0

Source: Field Survey, 1995

As can be observed from table 4.7, majority of the farmers (66%) have not attended any school, only 11.3% of them attended primary school and 8.7% completed primary school, while only 4% completed secondary school. This shows that most of the farmers in the study area are still illiterates.

Table 4.8 Farmers' Number of Farm Plots

No. of Farms	Frequency	Percentage
1	17	11.3
2	53	35.3
3	37	24.7
4	27	18.0
above 4	16	10.7
Total	150	100.0

Source: Field Survey, 1995

Table 4.8 shows the distribution of farms by farmers. The modal class of the number of farms owned by the farmers is two. This is represented by 35.5% of the farmers. The mean number of farmers' farms is three. This may indicate that farmers' time would not be wasted in travelling from one farm to the others.

Table 4.9 Farmers' Farm sizes

Farm Size	No. of Farmers	Percentage
Less than 2 hectares	2	1.3
2 - 4 hectares	33	22.0
5 - 7 hectares	40	26.7
8 - 10 hectares	28	18.7
11 - 13 hectares	13	8.7
14 - 16 hectares	12	8.0
over 16 hectares	22	14.6
Total	150	100.0

Source: Field Survey, 1995

The modal class of the farm sizes owned by the farmers is 5-7 hectares. This represents 26.7% of the farmers.

The mean farm size of the farmers in the study area is 9.72 hectares. This means most of the farmers are slightly above small scale level. According to Oyaide (1988) in Dafwang (1991), a small scale farmer operates less than six hectares of farm land in a given year. But from all indications, this modal and mean farm sizes given are generally much larger than elsewhere in Nigeria where no more than 2.5 ha is under cultivation in any

year, therefore the estimate given by the farmers of their farm sizes should be interpreted with caution.

Table 4.10: Farmers' Land Tenure System

Tenure System	No. of Farmers	Percentage
Inheritance	166	77.3
Pledge	17	11.3
Purchase	4	2.7
Gifts	5	3.4
Lease	8	5.3
Total	150	100.0

Source: Field Survey, 1995

From table 4.10, 77.3% of the farmers own their farm lands by inheritance followed by 11.3% who owned their farm lands through pledge; and only 2.7% owned their farm lands by purchase. This shows that in the study area agricultural lands are still held under permanent unsufructuary rights, where a member of a family has no right to sell out his field. Also, the low percentage of farm land acquisition by purchase and leasing could be because of the conflict often generated from such methods of land acquisition, as some farmers who are pledged or leased land sometimes lay claim over it; usually after the death of the owner.

Table 4.11 Labour Employed on the Farms

Labour	No. of Farmers	Percentage
Family	59	39.3
Hired	7	4.7
Both	82	54.7
No response	2	1.7
Total	150	100.0

Source: Field Survey, 1995

As can be seen from table 4.11 above, 59 (39.3%) of the farmers employ family labour on their farms, while 82 (54.7%) of them employ both family and hired, with only 4.7% employing hired labour. This is to say that the farmers in the study area still depend on family labour as their source of labour. This explains why most of these farmers (69%) have more than 4 children.

These socio-economic characteristics of the farmers studied have significant implications for agricultural innovation adoption studies. This is because most of the research studies on the agricultural innovation adoption found out that status factors such as age, level of education, farm size and ownership, number of children and social participation to be positively or negatively related to the adoption of recommended agricultural practices. (Basu 1969, Roggers and Shoemaker, 1971; Ali 1977; Vol. 1979; Atala 1980).

4.3 ASSESSMENT OF THE RELEVANCE OF JOB PREPARATION BY GRADUATES OF COLLEGE OF AGRICULTURE, LAFIA

4.3.1 Job preparation

In this section, we shall examine the information elicited from the graduates on how they perceived their preparation for the jobs they were doing at the time of data collection.

Responding to the question asked about the subjects studied during their agricultural training, 26% of the graduates indicated by ticking from the list of subjects on pages 5-7 offered by the College, Government and General studies are the subjects they did not offer while in the College. They might be graduates of 1990 because it was gathered that the two subjects were not yet introduced in the College by then.

The question on subjects studied was asked to determine how prepared the graduates of the College were in order to be effective on their jobs. It should be remembered that the College curriculum was designed with the assumption attributable to FAO (1970) that anyone who passes through the course programme successfully would, all things being equal, be able to perform effectively as agricultural technicians in a wide range of skilled occupation.

The graduates were also asked to indicate five subjects they considered most valuable to their jobs and five subjects they considered least important

to their jobs from the list of subjects they studied at the College.

The following subjects in Table 4.12(a) were mentioned.

Table 4.12(a): Five subjects most valuable to the graduates job performance in order of importance

	Subject	Percentage
1.	Rural Sociology	60%
2.	Agricultural Extension	58%
3.	Elements of Agric. Economics	36%
4.	English	25%
5.	Farm Management	25%

The respondents preferences are in line with Ahmed and Coombs (1974) suggestion for the inclusion of Agricultural Economics, Rural Sociology and other social sciences in the curriculum of agricultural training in developing countries.

The five subjects the graduates mentioned to be of least value to their jobs performance in order of least importance are as contained in Table 4.12(b) below.

Table 4.12(b): Five subjects of least value to the graduates' jobs performance in order of least importance

	Subjects	Percentage
1.	Government	63%
2.	General Studies	59%
3.	Basic Fisheries technology	42%
4.	Basic Principles of Land surveying	30%
5.	Mathematics	25%

The inclusion of Basic Fisheries Technology among the list of irrelevant subjects by the graduates could be due to the fact that none of the organizations surveyed (ADP, Ministry and LGA) have well-established fishery projects in the state.

The respondents wished they had studied Hausa Language while in the College. Their reason for the choice was for easy communication with farmers. This was the response of 32 of them.

When asked to list the subjects they found difficult during their training, the respondents indicated in order of difficulty the following subjects in table 4.13(a).

Table 4.13(a): Subjects considered Difficult by the Graduates

	Subject	Percentage
1.	Mathemtatics	61%
2.	Statistics and Field Experimentation	52%
3.	Basic Principles of Land Surv.	48%

4.	Soil Fertility and Crop Nutrition	46%

The reasons given for indicating that these subjects were difficult can be summarised as follows:

Table 4.13(b): Reasons for subject difficulty

	Reason	No. of Times Mentioned
i.	No interest	63
ii.	Deals with abstract thought	47
iii.	Discouraged by teacher's attitude and methods of teaching.	30

Most of these subjects listed are mathematically biased. Perhaps, it is a manifestation of the general poor preparation in Mathematics at the secondary school level across the nation. Going by the academic records of the College, of the two hundred and two students admitted in the 1995/96 session, only five had a credit pass in Mathematics in the school Certificate Examination, while 67 had just passes and the rest (130) failed Mathematics. But the requirements of agricultural education curriculum requires good grounding in Mathematics. It is therefore advisable to restrict admission to candidates with at least a pass in Mathematics.

4.3.2 Graduates Rating of their Training Programme

The opinion of the graduates were sought regarding the adequacy and relevance of their training. Issues raised relate to (i) the level of satisfaction with their training; (ii) the relevance of their training to their work; (iii) their rating of the training facilities at the College; (iv) difficulties they experienced during the period of training; (v) their suggestions for the improvement of the training programme at the College.

Responding to the level of satisfaction with the training received, 99 of the respondents said they were satisfied with the training, only one of them indicated that he was not satisfied with the training.

To determine whether there is any relationship between their level of satisfaction with the training they have received, and the organization they are working for, a chi-square test was applied by cross tabulating information given about level of satisfaction with their training with the four organizations that respondents were drawn from.

Table 4:14 Relationship between the Graduates level of Satisfaction with the Training Received and the Organization they are Working for.

Level of Satisfaction	ORGANIZATIONS ADP	Ministry	LGA	NGO	Total
V. Satisfactory	17	8	15	2	42
Satisfactory	31	11	14	1	57
Not Satisfactory	1	0	0	0	1
Total	49	19	29	3	100

$df = 6$, $P = 0.05$, $x^2 = 3.773$

Source: Field Survey, 1995

The result of the test is presented in table 4.14 above, which shows a calculated chi-square value of 3.773 which is less than the critical value of 9.488 at 0.05 level of significance with 6 degrees of freedom. The test shows that there is no association with the training they received and the organizations they are working for.

With regards to the relevance of the training received with the work they are doing, all of them indicated that the training received was relevant to their job performance. To determine if any association exists between the graduates' expression of relevance of their training to the work they are doing and with the organizations they are working, a chi-square test was also applied. Table 4.15 shows the result.

Table 4.15: Test of association between the graduates expression of relevance of their training and the organizations they work for.

	ORGANIZATIONS				
	ADP	MINISTRY	LGA	NGO	TOTAL
Very relevant	29	10	18	3	60
Relevant	20	9	11	0	40

Df = 3, P = 0.05, x^2 = 2.495

Source: Field Survey, 1995

The calculated chi-square is 2.495 which at 0.05 level of significance, with 3 degrees of freedom is less than the theoritical x^2 value of 7.815. The test result also shows that there is no association between the respondents expression of relevance of the training received with the particular organization they are working for. It means therefore that regardless of the organization the College graduates find themselves, they regard the training they have received at College to be relevant.

But it is interesting to note that despite the high level of satisfaction expressed by these graduates regarding the training they have received from the College of Agriculture, Lafia, a high percentage of them (61%)considered the College training facilities to be inadequate. There seems to be a problem in their opinion. The probable reason for this consideration could be that despite their satisfaction with the training, they still

discovered some problems such as congestion of students on the limited facilities in the College. This is borne out by the range of facilities the graduates recommended the College should have for proper training (see Table 4.16).

Table 4.16: Facilities recommended by the graduates for proper training at the College

Facilities Recommended	No. of Times mentioned
1. Varieties of field equipment for practical demonstration eg. tractor herbicides, insecticides.	54
2. Equiped laboratories, library and workshops	34
3. More equipment in the livestock farm e.g. large and smalla animals for demonstration	16
4. Qualified academic staff	09

Source: Field Survey, 1995

On the question of whether the graduates experienced any difficulty during their training, 67% of them answered in the positive.

The difficulties they experienced is summarised in table 4.17

Table 4.17: Difficultires Graduates Experienced during their training

Difficulties Experienced		No. of Times mentioned
1.	Lack of qualified lecturers to teach certain subjects	2
2.	Difficulty of the subject matter	16
3.	Poor attitudes of some lecturers in the College	7
4.	Lack of learning materials	45

Source: Field Survey, 1995

The respondents also suggested ways of improving the training of students at the College. Their suggestions are summarized in table 4.18.

Table 4.18: Suggestions for improving the training programme at the College

Suggestions		No. of times mentioned
1.	Admit limited number of only qualified candidates for proper handling, especially during practicals	46
2.	Give more attention to practicals than theory	42
3.	Expose lecturers to regular In-service training	11
4.	Recruit only qualified academic staff	9

Source: Field Survey, 1995

4.4 VIEWS OF FARMERS AND EMPLOYERS ON THE EFFECTIVENESS OF THE GRADUATES AS EXTENSION AGENTS.

4.4.1 Farmers' Views on the Effectiveness of the Graduates as extension agents

In order to determine the views of the farmers as regards the effectiveness of the graduates of the College, as extension agents, the sampled farmers were asked to state how frequently the agents (graduates) interact with them, and what were their level of satisfaction with the frequency of the interaction; the graduates activities in influencing adoption of agricultural innovation; and their human relationship, especially with them. The farmers were also asked to suggest how the role of the graduates as extension agents can be improved.

The frequency of the farmers interaction with the graduates (extension agents) is indicated in table 4.19 below.

Table 4.19: Frequency of farmers interaction with the Graduates

Frequency of interaction	No. of Farmers	Percentage
Once a week	5	3.3
Once in two weeks	32	21.3
Once in a month	37	24.7
Once in three months	35	23.3
Twice in a year	28	18.7
No response	13	8.7
Total	150	100.0

Source: Field Survey, 1995

The modal frequency of the interaction in Table 4.19 is once in a month involving 37 farmers, followed by once in three months with 35 farmers. From this finding, only a few farmers (3.3%) were being frequently interacted, while the majority of them (66.7%) were not frequently interacting with the graduates.

Table 4.20 below shows the farmers' perception of the frequency of interaction with the graduates, in which nearly 51% of them expressed dissatisfaction with their interaction.

This means the graduates of the College are performing below farmers' expectations. The probable reasons could be due to some constraints on the graduates to perform their duty as extension agents.

Such constraints like lack of mobility, and incentives for them to work, inadequate and late supply of working materials as mentioned somewhere in this work.

In order to encourage the effectiveness of the performance of these important change agents, drastic measures should be taken to reduce their constraints.

Table 4.20: Farmers' perception of the frequency of interaction with the Graduates

Perception	No. of Farmers	Percentage
V. Satisfactory	12	8.0
Satisfactory	62	41.3
Not satisfactory	76	50.7
Total	150	100.0

Source: Field Survey, 1995

The sampled farmers were asked to express their views on the role effectiveness of the graduates as extension agents.

Below is table 4.21 showing their response.

Table 4.21: Farmers' Views on the role effectiveness of the Graduates

View	No. of Farmers	Percentage
Very effective	16	10.7
Effective	73	48.7
Not effective	61	40.6
Total	150	100.0

Source: Field Survey, 1995

From table 4.21 which shows farmers views of the role effectiveness of the graduates as extension agents, we see that 89 of the farmers which represents 69.4% said the role of the graduates as extension agents is effective. But a significant proportion (about 41%) also indicated that they were not effective. This divergent views of the farmers could be due to variations in the level of interaction between the farmers and the graduates. Such that, those who are frequently interacted might have positive feeling of their role while those who are not frequently interacted might have negative feeling towards their role.

Table 4.22: below shows farmers' perception of the human relation aspect of the work of the graduates.

Table 4.22: Farmers Perception of Human Relation Skill of the Graduates

Farmers' Views	No. of Farmers	Percentage
Very Poor	3	2.0
Poor	9	6.0
Fair	64	42.7
Good	74	49.3
Total	150	100.0

Source: Field Survey, 1995

138 of the farmers in Table 4.22 said the graduates' human relation skill is fair and good, only 12 persons which represents 8% of the farmers said their human relation skill especially to farmers is poor.

To determine if there is any spatial differentiation among the farmers' views about the graduates, the farmers were grouped into northern and sourthern zones of the ADP on the basis of the location of the villages where they were interviewed. Chi-square test were then carried out on the information given in tables 19 - 21; the test results are presented in Table 4.23 below.

Table 4.23 shows that the calculated chi-square values for all the variables are less than the corresponding table values. Thus, there is not significant spatial difference in the views of the farmers expressed about the graduates irrespective

of the location of these farmers. In other words, farmers in both the northern and southern parts of then Plateau State share the same views about the graduates of the College of Agriculture, Lafia.

Table 4.23: Spatial differenciation in the farmers' views about activities of the graduates of the College.

		Cal.x^2	df	Prob.	Table Value	Remark
i.	Frequency of interaction	9.736	5	0.083	11.070	Not significant
ii.	Perception of interaction	4.007	2	0.135	5.991	Not significant
iii.	Rating of the activities of the graduates in influencing adoption of new agricultural practices	5.916	2	0.052	5.991	Not significant
iv.	Human Relationship	3.001	4	0.558	9.488	Not significant

Source: Field Survey, 1995

4.4.2 Employers' Views about the Graduate Training and Job Performance.

The employers of the graduates were asked to give their views about the adequacy or inadequacy of the agricultural training programmes of the graduates of the College in meeting the needs of agricultural middle level manpower; what they would recommend to the College and the government of the state for improving agricultural education.

Table 4.24 below shows the responses of the employers surveyed on how adequately the graduates training had been.

Table 4.24: Employers' Views on the training of the College Graduates

Adequacy of Training	Frequency	Percentage
V. Adequate	3	7.9
Adequate	24	63.2
Inadequate	11	28.9
Total	38	100.0

Source: Field Survey, 1995

As can be observed in Table 4.24, the majority of the employers (about 71%) are of the opinion that graduates of the College are adequately trained for their jobs.

The few (29%) of them who are not satisfied with the graduates training identified inability to comprehend simple instructions due to lack of

basic communication skills as well as inadequate proficiency in skills as some of the most common deficiencies of the graduates. The indication of the employers about the deficiency of the College graduates in basic communication skills is not a surprise, because proficiency in English Language is not a pre-requisite for admission into the College. For instance of the two hundred and two students admitted into the College in the 1995/96 academic year, only six of them had a credit in English Language at GCE (Ordinary Level), 51 had passes, and this has been the trend over the years.

The employers were also asked to state the problems confronting the graduates after training which are considered as obstacles to non-achievement of the main goal of the training of the graduates as Agricultural Middle manpower. The followings were identified as obstacles:

1. Lack of resources and incentives to carry out their expected roles such as working tools, finances, inputs etc., which consequently leads to the redundancy of the employed graduates of the College.

2. Lack of employment of the graduates in the appropriate offices that required their skills. Hence they do not always put into practice what they have learned in the College, which

consequently lead to non-transmission of the acquired knowledge to the target group of farmers.

Employers' suggestion to the College.

1. The College should pay more attention to practicals at all levels than theory. They were particularly about calibration and chemicals spraying.

2. Proficiency in English Language, both at the admission level, and during the training should be encouraged.

Employers suggestions to the Government

1. Government should create more job opportunities for the graduates.

2. Loans should be given to the graduates especially those who are not employed to help them towards self-employment.

3. More working tools and capital resources should be provided for the employed graduates to work with.

4. Incentives should be given to the employed graduates in order to motivate them to be more productive. For instance, better pay, motor-cycle loan, rural working environment allowance.

4.5 CHANNELS OF COMMUNICATION: USED BY THE GRADUATES TO DISSEMINATE IMPROVED AGRICULTURAL PRACTICES INFORMATION TO FARMERS.

The graduates of the College indicated the use of various channels of communication to disseminate news about improved agricultural practices to farmers. The channels being used are demonstration plots, home visits, farm and office visits, film show/video, letter writing, field days/tours, posters/pamphlets, radio/television and telephone.

The graduates were asked to indicate how often they used these channels of information dissemination in dealing with the farmers, their responses are indicated in Table 4.25 below:

Table 4.25: Communication Channels: Types and Frequency of use by the graduates

Channels	FREQUENCY OF USE		
	Never	Occassionally	Frequently
Demonstration plots	78	19	3
Home Visits	8	78	13
Farm Visits	3	21	76
Office Visits	5	90	5
Film/show/Video	12	80	8
Letter Writing	91	9	-
Field days/tours	15	84	1
Posters/pamphlets	2	77	21
Radio/Television	-	61	39
Telephone	89	9	2

Channels frequently used by the graduates (extension agents) are farm visits (76%), radio/television (39%), poster/pamphlets (21%). The channels they occassionally used are office visits (90%), field days/tours (84%), film show/video (80%), home visits (79%) while letter writing (91%). Telephone (89%) and demonstration plots (78%) are some of the never used channels of communication. The choice and the frequency of use of these channels may likely be due to the low educational level of the farmers (44%), availability of resources and the convenience of the channels to the agents.

Going by the varying frequency of use of different channels of communication indicated in Table 4.25, one wonders why credible channels considered by experts were not frequently used. For instance, Atala (1986) regards demonstration as a highly credible technique for disseminating information, but this is one of the techniques not frequently used by the graduates. Frequency of use of these channels of communication by organizations were also determined as contained in Table 4.26.

To find out whether the channels of communication the graduates normally use vary with the organization they work for, a chi-square test was applied

by cross tabulating the information provided about channels of communication with the organizations the respondents were drawn from. Find below the result of the chi-square test in table 4.27.

As can be observed from Table 4.27, there is a significant association between the organizations where the graduates are working and the frequency of use of home and farm visits as well as field days/tours as channels of communication adopted by the graduates. On the other hand, there is no significant association between the frequency of utilization of other channels of communication and the organization they are working. The likely reason for this significant association between the organizations the graduates are working and the frequency of use of home and farm visits, and field days/tours channels of communication could be due to variations in the incentive given to the employed graduates by the organizations they are working for. Take for example, PADP do provide their employees with motorcycles to ease their movement and often occassionally organize field days/tours for farmers, but other organizations, such as the Ministry of Agriculture and Local Government rarely do these.

Table 4.26. Frequency of use of channels of communication by Organization

Channels	Frequency	ORGANIZATIONS ADP	MIN.	LG.	NGO
Demonstration	Never	39	19	23	2
	Occassionally	8	5	5	1
	Frequently	2	0	1	0
Home Visits	Never	5	2	1	0
	Occasionally	38	13	27	1
	Frequently	6	4	1	2
Farm Visits	Never	0	1	1	1
	Occassionally	2	10	8	1
	Frequently	47	8	20	1
Office Visits	Never	3	1	1	0
	Occassionally	45	17	25	3
	Frequently	1	1	3	0
Film Show	Never	5	2	4	0
	Occasionally	37	17	23	3
	Frequently	7	0	1	0
	No response	0	0	1	0
Letter writing	Never	44	18	27	2
	Occassionally	5	1	2	1
Field Days	Never	0	7	7	1
	Occassionally	48	17	22	2
	Frequently	1	0	0	0
Posters/ Pamphlets	Never	1	1	0	0
	Occassionally	40	11	23	3
	Frequently	8	7	6	0
Radio/Television	Never	-	-	-	-
	Occassionally	34	10	15	2
	Frequently	2	0	0	0

Source: Field Survey, 1995

Table 4.27. Relationship between Organizations and the Frequency of Use of Channels of Communication by the Graduates.

Channels	Cal.x^2	df	Prob.	Critical x^2	Remarks
Demonstration plot	2.079	6	0.912	12.592	Not significant
Home visits	12.892	6	0.045	12.592	Significant
Farm Visits	33.879	6	0.000	12.592	Significant
Office Visits	3.182	6	0.786	12.592	Not significant
Film show	8.435	9	0.491	16.917	Not significant
Letter writing	2.736	3	3.340	7.815	Not significant
Field days/tours	19.340	6	0.032	12.592	Significant
Posters	6.327	6	0.388	12.592	Not significant
Radio/TV	3.098	3	0.377	7.815	Not significant
Telephone	3.570	6	0.785	12.592	Not significant

Source: Field Survey, 1995.

4.6 CHANNELS OF COMMUNICATION FREQUENTLY PATRONIZED BY THE FARMERS

4.6.1 Channels Frequently Patronized

The Table 4.28 below shows the channels frequently patronized by farmers to obtain information on improved agricultural practices. From Table 4.30 eighty farmers representing 53.4% of those surveyed indicated "fellow farmers" as the most frequent source of information they patronized, followed by Radio/TV, with 22.7% and next by extension agents with 19.3%. Farmers in the study area are likely patronizing fellow farmers frequently for their information on improved practices because it is the nearest source and the cheapest.

Radio/TV is also frequently patronized probably because most farmers in the study area have either a radio or TV. It could also be because the radio is a less expensive method of obtaining information. Some of the farmers also have access to television. Another probable reason could be because of the appropriate time schedule of the PADP Farm programmes of Plateau Radio Television (PRTV) Jos, which comes up on Sunday fron 7.10 to 7.25p.m. and repeated on Wednesdays from 9.05 to 9.20pm. Also the National Television Authority (NTA) Jos jas scheduled the same farm programme on Sundays as from 6.00 to 6.30pm where issues on all aspects of agriculture are discussed for the farmers to watch and listen to.

Table 4.28. Patronage of Channels of Communication by Farmers in the Study Area.

	FREQUENCY					
	Never	%	Occassionally	%	Freqt.	%
Extension agents	21	14.0	100	66.7	29	19.3
Fellow farmers	6	4.0	64	42.7	80	53.4
Posters	74	49.3	76	50.7	-	-
Agricultural Bulletins	124	82.7	26	17.3	-	-
Radio/Television	5	3.4	111	74.0	34	22.7
Newspapers	114	76.0	34	22.7	2	1.3
Cinema	103	68.7	45	30.0	2	1.3

Source: Field Survey, 1995.

Moreso, most of these broadcasts are done in the Hausa Language which most of the farmers understand.

These farmers' frequent patronage of Radio/TV as the source of their information agree with Yazidu's (1973) study of radio as a means of communicating agricultural information in both rural and semi-urban areas. Kidd (1968) also reported that the number of farmers who know the extension agents was low in his study and the greatest percentage of contact was by radio programmes on farming activities.

The frequent use of extension agents by the farmers sampled could be due to their low level of education or literacy as more than half (66%) of them have not attended any school (See table 4.8). The farmers then need face-to-face contact with extension agents to acquire information on new agricultural practice.

Sources never patronized are agricultural bulletins (82.7%), newspapers (76%) and Cinema (68.7%). The likely reason for not patronizing these channels as sources of information could not be unconnected with the low educational level of the farmers.

4.6.2 Relationship between the Channels of Communication Frequently Patronized by the Farmers and Adoption of the Improved Agricultural Practices

In order to determine whether there is any significant association between any of the channels of communication frequently patronized by the farmers and their adoption of the improved agricultural practices, a chi-square test was carried out by cross tabulating information provided for each of the three frequently patronized channels of communication (Fellow Farmers, Radio/TV and Extension Agents) and the improved agricultural practices adopted.

Below are the results of the test in table 4.29 (a-c).

As can be observed in Table 4.29 (a-c), the channels of communication frequently patronized (fellow farmers, radio/TV and extension agents) by the sampled farmers have no statistically significant association with the adoption of most of the improved agricultural practices, except fertilizer and herbicides which have significant association with Radio/TV channels and contour farming with fellow farmers.

Fertilizer and herbicides have statistical significant association with Radio/TV as channels of communication patronized by farmers, probably because they are some of the most frequent inputs

Table 4.29(a). Association between "fellow farmers" as a channel of communication patronized by the farmers and their "adoption of improved practices".

Variables (innovations)	Cal.x^2	df	Prob.	Critical x^2	Remarks
1. Fertilizer	1.822	3	0.610	7.815	Not significant
2. Insecticides	4.530	3	0.210	7.815	Not significant
3. Herbicides	6.014	3	0.111	7.815	Not significant
4. Tractor Hiring	4.655	3	0.199	7.815	Not significant
5. Modern spacing of planting	3.078	3	0.380	7.815	Not significant
6. Credit facility	7.636	6	0.266	12.582	Not significant
7. Storage chemical	3.220	3	0.815	7.815	Not significant
8. Contour farming	8.595	3	0.035	7.815	Significant
9. Citrus trees	4.199	6	0.650	12.592	Not significant
Improved Seeds					
10. Rice	1.292	3	0.731	12.592	Not significant
11. Maize	1.508	3	0.681	12.592	Not significant
12. Cassava	3.324	9	0.950	16.919	Not significant
13. Palm oil	6.037	3	0.110	7.815	Not significant
14. Beans	1.673	3	0.643	7.815	Not significant
15. G/Nut	4.100	3	0.251	7.815	Not significant
16. Millet	4.613	6	0.594	12.592	Not significant
17. Guinea corn	2.423	3	0.489	7.815	Not significant
18. Yam	2.199	3	0.532	7.815	Not significant

Variables (innovations)	Cal.x^2	df	Prob.	Critical x^2	Remarks
Pottery/Livestock					
19. Newbreeds	1.408	3	0.704	7.815	Not significant
20. Vaccination	1.310	3	0.727	7.815	Not significant
21. Balanced feed	1.655	3	0.642	7.815	Not significant
22. Housing	1.292	3	0.731	7.815	Not significant

Table 4.29(b). Association between Radio/T.V. as a channel of communication patronized by farmers and the adoption of improved practices.

Variables (innovations)	Cal.x^2	df	Prob.	Critical x^2	Remarks
1. Fertilizer	17.661	4	0.001	9.488	Significant
2. Insecticides	5.452	4	0.244	9.488	Not significant
3. Herbicides	10.490	4	0.033	9.488	Significant
4. Tractor Hiring	1.766	4	0.779	9.488	Not significant
5. Modern spacing of planting	1.400	4	0.844	9.488	Not significant
6. Credit facility	10.315	8	0.244	15.507	Not significant
7. Storage chemical	7.712	4	0.103	9.488	Not significant
8. Contour farming	8.136	4	0.082	9.488	Not significant
9. Citrus trees	1.446	8	0.994	15.507	Not significant
Improved Seeds					
10. Rice	3.356	4	0.500	15.507	Not significant
11. Maize	7.850	4	0.097	15.507	Not significant
12. Cassava	7.471	12	0.825	21.026	Not significant

Variables (innovations)	Cal.x^2	df	Prob.	Critical x^2	Remarks
13. Palm oil	5.256	4	0.262	9.488	Not significant
14. Beans	3.179	4	0.528	9.488	Not significant
15. G/Nut	3.833	4	0.429	9.488	Not significant
16. Millet	4.522	4	0.807	9.488	Not significant
17. Guinea corn	4.737	8	0.315	9.488	Not significant
18. Yam	3.892	4	0.421	9.488	Not significant
Pottery/Livestock					
19. Newbreeds	3.157	4	0.532	9.488	Not significant
20. Vaccination	2.423	4	0.658	9.488	Not significant
21. Balanced feeds	3.672	4	0.452	9.488	Not significant
22. Housing	2.580	4	0.630	9.488	Not significant

Table 4.29(c). Association between Extension Agents as a channel of communication as patronized by the farmers and the adoption of improved practices.

Variables (innovations)	Cal.x^2	df	Prob.	Critical x^2	Remarks
1. Fertilizer	2.353	2	0.038	5.991	Not significant
2. Insecticides	0.397	2	0.820	5.991	Not significant
3. Herbicides	1.223	2	0.543	5.991	Not significant
4. Tractor Hiring	0.966	2	0.617	5.991	Not significant
5. Modern spacing of planting	3.087	2	0.214	5.991	Not significant
6. Credit facility	6.312	4	0.177	9.488	Not significant
7. Storage chemical	1.433	2	0.489	5.991	Not significant
8. Contour farming	4.311	2	0.116	5.991	Not significant
9. Citrus trees	1.479	4	0.830	9.488	Not significant
Improved Seeds					
10. Rice	0.559	2	0.756	5.991	Not significant
11. Maize	3.734	2	0.155	5.991	Not significant
12. Cassava	2.421	2	0.877	5.991	Not significant
13. Palm oil	2.229	2	0.328	5.991	Not significant
14. Beans	3.995	2	0.136	5.991	Not significant
15. G/Nut	0.323	2	0.851	5.991	Not significant
16. Millet	5.724	4	0.221	9.488	Not significant
17. Guinea corn	2.020	2	0.364	5.991	Not significant
18. Yam	0.188	2	0.910	5.991	Not significant
Poultry/Livestock					
19. Newbreeds	3.305	2	0.192	5.991	Not significant
20. Vaccination	1.500	2	0.472	5.991	Not significant
21. Balanced feed	3.037	2	0.219	5.991	Not significant

communicated to the farmers through radio/TV channels of communication, therefore, farmers that have radio/TV might likely patronize these channels to obtain their information of fertilizer and herbicides more than those who do not have.

Contour farming has statistically significant association with fellow farmers probably because it is more practiced on the Jos Plateau area which has a rugged terrain than the lowland area of the state. Hence, Patronage of fellow farmers as a source of information of contour farming may be more pronounced on Jos Plateau Part of the state than the lowland area.

4.7 INVENTORY AND FREQUENCY OF IMPROVED AGRICULTURAL PRACTICES COMMUNICATED TO FARMERS.

4.7.1 Improved Agricultural Practices Communicated to Farmers

Table 4.30 shows an inventory and frequency of the improved practices communicated to farmers as reported by the graduates of Plateau State College of Agriculture, Lafia.

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Table 4.30: Frequency of Improved Practices Communicated to Farmers

Improved Practices	FREQUENCY Never	Occassionally	Frequently
Fertilizers	11	34	55
Insecticides	51	43	6
Herbicides	63	36	1
Tractor Hiring	4	42	54
Modern Spacing of Planting	87	12	1
Credit facility	24	73	3
Storage chemical	2	68	30
Contour farming	86	13	1
Citrus trees	33	65	2
Improved Seeds			
Rice	6	37	57
Maize	32	47	21
Cassava	20	47	33
Palm Oil	69	30	1
Beans	20	79	1
Groundnut	7	89	1
Millet	43	55	2
Guinea Corn	43	55	2
Yam	10	82	8
Livestock/Poultry			
Newbreeds	41	54	5
Vaccination	52	44	4
Balanced Feed	54	45	1
Housing	63	35	2

Source: Field Survey, 1995

Fertilizer (55%), tractor hiring (54%), Storage chemical (30%) and crops such as Rice (57%), Cassava (33%) and Maize (21%) were communicated more frequently to farmers than the others in the study area. Those occassionally communicated are groundnuts (89%), yam (82%), credit facility (73%), Beans (95%), Storage chemicals (68%), Guinea corn (66%), Citrus trees (65%) while those with high percentage of "never communicated" are modern spacing of planting (87%), contour farming (86%), herbicides (68%) and insecticides (61%).

Going by the frequency of communication of these improved practices, it can be observed that those variables which have attributes for easy adoption and are relatively new to the farmers were communicated more frequently than those farmers considered hard to adopt, either on the premise that they are difficult to practice and costly or hardly available to them. For example fertilizer, tractor hiring and storage chemical were considered by the sampled farmers to be easy to practice and more available to them than other practices such as modern spacing of planting, and herbicides which they considered difficult and costly respectively to practice.

4.7.2 Relationship between the organization the Graduates are working for and the Improved Agricultural Practices Communicated

A test for significant association between the types of improved agricultural practices communicated

to farmers by the graduates (Change agents) and the organizations in which they are working was carried out by using chi-square test at 0.05 level of significance. Table 4.31 shows the result of the test.

As can be observed in Table 4.31, there is no significant association between most of the types of improved agricultural practices communicated by the graduates and the organizations in which they are working except rice and palm oil which have statistically significant association. The communication of improved palm oil and rice have statistical significant association with the organization where the graduates are working probably because, of all the organizations sampled, PADP is the only one with well established seed multiplication farm, therefore there is that tendency for the graduates working with PADP to communicate improved palm oil to farmers more than other organizations.

PADP also store varieties of improved seeds than LGC and Ministry of Agriculture, which could be the likely reason for the significant association of improved rice communication with the organizations the graduates are working.

Table 4.34 Relationship between the organization the graduates are working for and the improved agricultural practices communicated.

Improved practices (innovations)	Cal.x^2	df	Prob.	Critical x^2	Remarks
Fertilizer	10.314	9	0.326	16.919	Not significant
Insecticides	8.493	9	0.485	16.919	Not significant
Herbicide	5.019	9	0.833	16.919	Not significant
Tractor hiring	5.092	6	0.532	12.592	Not significant
Modern planting spacing	1.805	6	0.937	12.592	Not significant
Credit facility	6.808	6	0.339	12.592	Not significant
Storage facility	11.852	9	0.222	16.919	Not significant
Contour farming	3.956	6	0.683	12.592	Not significant
Citrus trees	4.029	6	0.673	12.592	Not significant
Improved Seeds					
Rice	30.984	9	0.000	16.919	Significant
Maize	4.230	6	0.646	12.592	Not significant
Cassava	7.975	6	0.240	12.592	Not significant
Palm oil	33.739	6	0.000	12.592	Significant
Beans	7.637	6	0.266	12.592	Not significant
Ground nuts	13.694	9	0.134	16.919	Not significant
Millet	5.673	9	0.772	16.919	Not significant
Guinea corn	3.896	6	0.691	12.592	Not significant
Yam	5.269	6	0.510	12.592	Not significant
Poultry/Livestock					
Newbreeds	7.687	6	0.262	12.592	Not significant
Vaccination	3.573	6	0.734	12.592	Not significant
Balanced feed	5.415	6	0.492	12.592	Not significant
Housing	7.625	6	0.572	16.919	Not significant

Source: Field Survey, 1995.

4.8 FARMERS' AWARENESS AND ADOPTION OF THE IMPROVED PRACTICES COMMUNICATED TO THEM

4.8.1 Improved Farming Practices the Farmers were Aware of

The primary purpose of communicating improved agricultural practices to farmers is to achieve a desirable change in their farming practices. But for that to occur, the farmers have to be aware of the message before adoption would take place. Farmers in the study area were asked to indicate those improved practices they were aware of and have tried during the past few years. The data in Table 4.32 represents information on awareness and adoption of the various innovations by the farmers.

All the farmers surveyed are aware of fertilizer, an average of 75.6% are aware of improved seeds and an average of 92.3% are aware of poultry production. However, 48% and 33.3% are not aware of contour farming and modern spacing of planting respectively, also 39.3, 37.3% and 33.3% are not aware of palm oil, millet and groundnuts respectively.

Table 4.32. Improved Agricultural Practices Farmers are aware and have adopted in the study area.

Improved Practices (Innovations)	AWARE OF		NOT AWARE		ADOPTED		NOT ADOPTED	
	No.	%	No.	%	No.	%	No.	%
Fertilizer	150	100	-	-	148	98.7	2	1.3
Insecticide	134	89.3	16	10.7	55	36.7	95	63.3
Herbicides	130	86.7	20	13.3	26	17.3	124	82.2
Storage chemicals	136	90.7	14	9.3	92	61.3	58	37.7
Tractor hiring	139	92.7	11	7.3	53	35.3	97	64.7
Modern spacing of planting	100	66.7	50	33.3	25	16.7	125	83.3
Credit facility	136	90.7	14	9.3	34	22.7	116	77.3
Contour farming	78	52.0	72	48.0	28	18.7	122	81.3
Citrus trees	117	78.0	33	22.0	42	28.0	108	72.0
Improved Seeds								
Rice	143	95.3	7	4.7	82	54.7	68	45.3
Maize	147	98.0	3	2.0	86	57.3	64	42.7
Cassava	137	91.4	13	8.7	82	54.7	68	45.3
Palm oil	91	60.7	59	39.3	26	17.3	124	82.7
Beans	107	71.3	43	28.7	49	32.7	101	67.3
Groundnuts	100	66.7	50	33.3	34	22.7	116	77.3
Millet	94	62.7	56	37.3	33	22.0	117	78.0
Guinea corn	102	68.0	48	32.0	40	26.7	110	73.3
Yam	100	66.7	50	33.3	41	27.3	109	72.7
Livestock/Poultry								
Newbreeds	149	99.3	1	0.7	59	39.3	91	60.7
Vaccination	132	91.3	13	8.7	41	27.3	109	72.7
Balanced feed	137	91.3	13	8.7	50	33.3	100	66.7
Housing	131	87.3	19	12.7	21	14.0	129	86.0

Source: Field Survey, 1995.

This therefore shows that, there is a correlation between communication of improved agricultural practices and awareness of them by the sampled farmers. This is because majority of the farmers are aware of fertilizer and improved seeds such as cassava, maize and rice which were communicated frequently by the graduates to the farmers; (see table 4.32), while other improved practices such as contour farming, modern spacing of planting and improved seeds such as palm oil, millet and groundnuts which were less frequently communicated by the graduates were less aware of by the farmers.

4.8.2 Relationship between Awareness of Improved Agricultural Practices among Farmers in the Northern and Southern Zones of Plateau State

In order to determine the significant association between the awareness of the farmers in the different geographical locations of the state, a chi-square test was run on the responses of the farmers who were divided into two zones - Northern and Southern Plateau. Table 4.33 shows the results of the chi-square test.

Table 4.33 clearly shows that farmers awareness of some of the improved practices depends on their geographical location. It can be observed that awareness of some of the improved practices have significant relationship with farmers' geographical location in the state. For instance, awareness of improved practices of yam, cassava, groundnuts, contour farming, citrus trees have significant

statistical association with geographical conditions between northern and southern PADP zone of the state. The likely reason for the statistically significant association between location and awareness of these innovations could be due to varying geographical conditions which favour certain practices in one area but not another. It is therefore not by chance.

Table 4.33 Relationship between awareness of ... location of the farmers.

Variables	Cal. x^2	df	Prob.	Critical x^2	Remarks
1. Fertilizer	-	-	-	-	-
2. Insecticides	5.499	1	0.190	3.841	Significant
3. Herbicides	9.878	1	0.002	3.841	Significant
4. Tractor Hiring	3.071	1	0.080	3.841	Not significant
5. Modern spacing of planting	0.214	1	0.644	3.841	Not significant
6. Credit facility	1.780	1	0.182	3.841	Not significant
7. Storage facility	6.644	1	0.614	3.841	Significant
8. Contour farming	10.543	1	0.001	3.841	Significant
9. Citrus trees	8.488	1	0.004	3.841	Significant
10. Rice	1.710	1	0.191	3.841	Not significant
11. Maize	3.406	1	0.650	3.841	Not significant
12. Cassava	17.181	1	0.000	3.841	Significant
13. Palm oil	20.977	2	0.000	7.815	Significant
14. Beans	2.824	1	0.930	3.841	Not significant
15. Grountnuts	12.850	1	0.000	3.841	Significant
16. Millet	4.850	1	0.028	3.841	Significant
17. Guinea corn	8.426	1	0.004	3.841	Significant
18. Yam	8.357	1	0.004	3.841	Significant
19. Newbreeds	1.120	1	0.290	3.841	Not significant
20. Vaccination	17.181	1	0.000	7.815	Significant
21. Balanced feed	7.936	1	0.014	3.841	Significant
22. Housing	6.060	1	0.014	3.841	Significant

Source: Field Survey, 1995.

4.8.3 Adoption of Improved Agricultural Practices

Adoption is the only way to determine the successful introduction of any agricultural innovations. The study tries to confirm from the farmers whether or not they have adopted the improved practices they were aware of (see table 4.32). One hundred and forty eight (98.7%) of the farmers indicated that they "have adopted" fertilizer, 61.3%. 36.7% and 85% of them said they have "ever tried" storage chemicals, insecticides and tractor hiring respectively. Also 54.7%, 57.3% and 39.3% of them have adopted improved rice, maize, cassava and newbreeds of livestock/poultry respectively.

On a general note, most of the improved agricultural practices have been known to the farmers but their adoptions are still low. The apparent slow pace of adoption of some of the new practices seem to be in line with Baal and Roggers (1967) observation that adoption of innovation is not a snap decision, but a mental process on the part of the individual over a period of time. This means that individual farmers have to take some time to think over the decision of whether or not to adopt the improved practices communicated to them. But the point to note here is that the graduates (change agents) have to persuade and educate the farmers vigorously before they can give up their traditional farming practices

for the modern.

4.8.4 Association between Geographical Location and Adoption of the Improved Agricultural Practices among the Farmers (Northern and Southern Zones)

In order to determine whether adoption of improved practices by the farmers surveyed has any association with their geographical location in the PADP zones they come a chi-square test at 0.05 level of significance were applied to the appropriate information collected, the results in Table 4.34 shows that there are few improved practices adopted that correlate significantly with the geographical location of the farmers. These are insecticides, tractor hiring, contour farming, cassava, yam and newbreed production.

The statistically correlation of the adoption of a few improved practices by the farmers on the basis of geographical condition which favours the adoption of these improved practices within an area.

For instance, yam and cassava have favourable geographical factors for their production and adoption in Southern zone of the state relatively to the Northern zone. On the other hand, contour farming might be more practiced and adopted in the Northern zone of the state because of the hilly terrain of the area than the Southern zone.

Table 4.36. Relationship between the location of the farmers and adoption of improved practices (PADP Northern and Southern Zones).

Variables	Cal.x^2	df	Prob.	Critical x^2	Remarks
Fertilizer	2.255	1	0.133	3.841	Not significant
Insecticides	0.400	1	0.001	3.841	Significant
Herbicides	0.319	1	0.592	3.841	Significant
Tractor Hiring	4.093	1	0.043	3.841	Significant
Modern spacing of planting	0.134	1	0.715	3.841	Not significant
Credit facility	0.987	2	0.611	5.991	Not significant
Storage facility	0.028	1	0.879	3.841	Not significant
Contour farming	7.190	1	0.005	3.841	Significant
Citrus trees	3.006	2	0.222	5.991	Not significant
Improved Seeds					
Rice	1.891	1	0.169	3.841	Not significant
Maize	1.186	1	0.226	3.841	Not significant
Cassava	25.52	3	0.000	7.815	Significant
Palm oil	7.041	1	0.153	3.841	Not significant
Beans	0.079	1	0.779	3.841	Not significant
Groundnuts	0.125	1	0.723	3.841	Not significant
Millet	1.159	2	0.500	5.991	Not significant
Guinea corn	0.584	1	0.445	3.841	Not significant
Yams	45.07	1	0.000	3.841	Significant
Poultry/Livestock					
Newbreeds	8.930	1	0.003	3.841	Significant
Vaccination	5.526	1	0.019	3.841	Significant
Feed	9.039	1	0.003	3.841	Significant
Housing	0.001	1	0.977	3.841	Not significant

Source: Field Survey, 1995.

4.9 SOME OF THE MAJOR BENEFITS FARMERS DERIVED FROM ADOPTING IMPROVED PRACTICES

Farmers in the study area were asked to list some of the major benefits derivable from adopting improved practices. Their responses are summarised below in table 4.35

Table 4.35: Some of the major Benefits Farmers Derived from Adoption of Improved Practices

Benefits		No. of Times Mentioned
1.	Increase in farm productivity	68
2.	More knowledge about crop production and protection such as pests and diseases control, correct time of planting and crop spacing	43
3.	Increase in total land area cultivation	17
4.	Reduction in the labour cost	12
5.	Quick maturity of some of the crops which leads to early harvest	70
6.	Good storage method	21
7.	Resistance of some of the crops to disease and pest attack	43

From table 4.35 one can say, despite the fact that most of the farmers are yet to adopt most of the improved agricultural practices in the study area, the farmers indicated deriving some benefits from adopting improved agricultural practices. The benefits derived among others are quick maturity of the crops which lead to early harvest and an increase in their productivity.

4.10 FARMERS CONSTRAINTS TO ADOPTION OF THE IMPROVED PRACTICES.

The farmers were asked to indicate the extent the factors in table 4.36 have limited their adoption of the improved practices they were aware of. Below in table 4.36 are their responses.

From Table 4.36, high cost of farm inputs (96.7%) lack of credit facility (80.7%), low level of interaction with extension agents (80.7%), distance from the supply centre, (75.3%), inadequate quantity of farm inputs (55.3%) and late supply of farm inputs (46.7%) were identified as the most frequent factors that limit adoption of improved practices by farmers in the study area.

Late supply and inadequate quantity of the farm inputs such as fertilizers, insecticides, tractor hiring, credit facility and improved seeds were identified in the field as the major constraints to adoption. High cost of herbicides and its instrument of spraying was considered a limiting factor, while modern spacing of planting was considered too difficult to practice.

The farmers surveyed identified incompatibility of the improved agricultural practices with their local condition and cultural value (67.3%) a factor that does not limit their adoption of improved practices.

Table 4.36. Extent of Farmers Constraints to Adoption of Improved Practices

Limiting Factors	Much	%	Little	%	Not at all	%
1. Late supply of farm inputs	70	46.7	79	52.7	1	0.7
2. Inadequate quantity of farm inputs	83	55.3	67	44.7	-	-
3. High cost of farm inputs	145	96.7	5	3.3	-	-
4. Low level of interaction with extension agents	121	80.7	29	19.3	-	-
5. Lack of credit facility	121	80.7	29	19.3	-	-
6. Inability to meet the conditionality of improved practices	46	30.6	102	68.0	2	1.3
7. Poor transport	4	2.7	92	61.3	54	36.0
8. Distance from the supply centre	113	75.3	37	24.7	-	-
9. Incompatibility with local condition and cultural value	4	2.7	45	30.0	101	67.3

Source: Field Survey, 1995.

Factors that slightly affect their adoption are their inability to meet the conditionality of the improved practices (68.0%) and poor transport system (61.3%). Inability to meet the conditionality was considered as a slight factor limiting adoption probably because it is often based on other factors such as the availability and frequent supply of farm inputs, credit facility, and the costs of farm inputs. Poor transport system which one thought would have been one of the most determined factors that can limit adoption of improved practices, was considered a slight factor. This could be due to the recent improvement in the rural roads, due to the activities of rural development agencies, such as the Directorate of Foods, Roads and Rural Infrastructures (DFRRI).

4.11 MAJOR PROBLEMS CONFRONTING THE GRADUATES (EXTENSION AGENTS) IN PERFORMING THEIR JOBS

The respondents were requested to enumerate the major problems confronting them in performing their jobs. Below in Table 4.37 are the problems enumerated.

Table 4.37: Problems confronting the Graduates in Performing their Jobs

Problems		No. of times mentioned
1.	Lack of mobility	65
2.	Lack of incentives such as special allowance and better salary scale	57
3.	Lack of cooperation amongst farmers and their reluctance to adopt innovation	21
4.	Language barrier	6
5.	Lack of adequate and late supply of working materials	57

Problems	No. of times mentioned
6. High ratio of an extension agent to farmers	94

4.12 SUGGESTIONS FOR IMPROVEMENT OF THE PROBLEMS ENCOUNTERED BY AGENTS.

The respondents enumerated the following in table 4.38 as their suggestions for improvement of the stated problems.

Table 4.38: Suggestions for Improvement of the Graduates Problems

Suggestions	No. of times mentioned
1. Provision of mobility to the agents	60
2. Provision of adult education for the farmers in order to reduce communication barrier	6
3. Adequate and timely supply of farm inputs and other working materials	50
4. Employment of more extension agents	81
5. More icentives should be given to the agents	56

4.13 PROBLEMS ENCOUNTERED BY THE GRADUATES IN THE ORGANIZATION.

Contained in table 4.39 are the problems encountered by the graduates in their various working organizations.

As can be seen from the table, the magnitude of the problems confronting the graduates seems to be same in all the organizations they are working. To further investigate the major problems contronting the graduates in performing their jobs, the respondents were asked about their job satisfaction

as job satisfaction is the basic determinant of productivity. They were asked what lured them into agricultural profession, what are their thoughts of the job, the aspect of the job they enjoyed most or least, the desire to stay on the job and the means of reward for hard work.

In response to what lured them into the profession, 78% of the graduates indicated that they joined the profession because there was no other option, and only 17% of them did so because of interest, while bright professional prospect attracted zero percent of the respondents and 5% of them gave prestige attached to the work as their reason for joining the profession.

Table 4.39. Problems Encountered by Graduates in the Organization they are Working

Problems	PADP	Percent	Ministry	Percent	LGA	Per.	NGO	Per.
Inadequate mobility	80	61.2	14	73.36	19	65.5	2	66
Inadequate incentives	28	57.1	10	52.6	17	58.6	2	66
Inadequate cooperation	10	20.4	3	15.8	6	20.7	2	66
Late supply of farm input	29	59.2	11	57.9	16	55.2	1	33.3
Language barrier	3	6.1	2	10.5	1	2.0	0	0.0
High ratio of extension agents to farmers	47	95.9	17	89.5	28	59.5	2	66

Source: Field Survey, 1995.

Asked what they considered and think about their jobs, the graduates surveyed responded as in table 4.40 below.

Table 4.40(a) What the Graduates Considered about their Job

Too much work to do	37%
Just enough work to do	25%
Too little work to do	3%
Nothing to do	35%

The graduates were also asked to indicate the aspect of their jobs they enjoyed most, and reasons for enjoying that aspect. A large number of them did not respond but the few (42%) who did said they enjoyed farm and home visits as that enable them to exchange ideas with farmers and provide feedback at the spot of discussion. Those of them (28) who said they enjoyed field days/tours claimed that it enable them to know the problems of farmers and exchange ideas. The graduates said the job they enjoyed least is report writing as it is too boring and time wasting.

In response to what were their reward for hard work, "recommendation for promotion" has the highest response of 65%, followed by "recommendation for further studies" which attracted 26% while bonus at the end of the year attracted only 9%.

The graduates were asked whether they were satisfied with their jobs or not. About 6% of them said "no", while only 24% of them said "yes". On the question of whether they would want to stay on their job, 74% of them expressed their desire to leave the job, only 26% of them would like to remain in their jobs.

They were asked to give reasons for their remaining or not remaining on the jobs. Below are the reasons.

Table 4.41(a) Graduates Reasons for Remaining in the Jobs

Reasons	No. of times mentioned
1. Salary reasonable	-
2. Not easy to get another job	20
3. Condition of Service is good	-
4. Any other reasons	26
Tota:-	46

Table 4.41(b) Graduates Reasons for wanting to Leave the Jobs

1. No furthering of studies	-
2. The job is too rural in nature	18
3. The job is too demanding	5
4. Relative poor condition of service	51
Total	74

Table 4.42 Farmers' Suggestions for Improvement of the Graduates (Extension Agents') Activities

Suggestions	No. of times mentioned
1. Recruitment of more extension agents to reduce the ratio of an agent to farmers	84
2. Provision of means of transportation to the agents e.g. motorcycle or bicycle.	27
3. Proper monitoring and supervision of the agents	29
4. They should be motivated in order to enhance their productivity such as, provision of special allowance and better salary	57
5. The extension agents should have direct access to farm inputs, such as fertilizer, herbicides, insecticides, improved seeds, and supply of these inputs at the right time	72
6. There should be constant refresher courses and in-service training for the change agents	24
7. Provision of adequate instructional materials to the agents.	32

4.14 DISCUSSION

Agriculture is the predominant occupation of the rural dwellers in the study area; but their production level is still low. Several reasons have been advanced for the low pace. Prominent among them are the use of crude implements by the farmers and non-adoption of improved practices. In order to improve their production

level they need to be guided on better production techniques, hence the establishment of College of Agriculture Lafia in order to produce agricultural middle level manpower technicians as extension agents. This important change agents have crucial roles to play in improving agricultural production in the country. This is because farmers need to be persuaded and educated on a sustained basis to adopt improved agricultural practices, if we really want to be self sufficient in food production, reduce the incidence of hunger, poverty and improved their living standard.

This study revealed that the graduates were satisfied with the training they have received and found the training to be relevant to their job performance. The study also found that a lot of improved practices were communicated to the farmers through various channels of communication adopted by the graduates.

Perhaps as a result of the extension services rendered by the graduates, most of the farmers expressed their awareness and adoption of some of the improved practices. They went further to enumerate some of the benefits they derived from adoption of these practices, but going by the problems enumerated by the graduates as they affect their performance and also the constraints raised by the farmers to their adoption of improved

agricultural practices, we may conclude that the primary purpose of the training of the graduates of the College of Agriculture Lafia is yet to be optimally achieved. In order to achieve this, the afforementioned suggestions given by the graduates of the College in Table 4.38 and that of the farmers surveyed in Table 4.42 should strictly be adhered to.

Provision of mobility to the graduates (Extension Agents) is very important in extension delivery system. This is because for the successful performance of the agricultural extension services, there must be effective contact between the agents and the farmers. Also of equal significance for the operational efficiency of extension workers is the distance they have to cover. All these can only be done with effective means of transportation. The agents should therefore be provided with means of transportation in order to enhance their performance.

Making adult education programmes accessible to farmers is crucial in agricultural extension delivery system. According to Atala and Abdullahi (1990) one of the principal reasons behind low level of performance of introduction of technical change to improve agricultural productivity of the small farmers has to do with the dearth of education and skill at the farmers level. Their contention was based on the premise that a farmer could not fully

appreciate the message of agricultural extension programme without first possessing the necessary knowledge and skill to assess the source of agricultural information. Therefore in Nigeria with a large pool of illiterate farmers, extension of modern agricultural techniques and practices without an adult education programme as back up will lead to low adoption levels on the part of the farmers and low morals on the part of the skilled agricultural workers (graduates) because each side will question the validity and relevance of what each other is doing. Adult education to farmers would be the only panacea to this problem.

The reduction of an extension agent ratio to farming households is another factor to be considered in promoting effective extension delivery system. This is because in principle, it is recognised that the extension agent to farming households ratio is one of the basic criteria for assessing the performance of an extension system. For this reason, more graduates of the College should be employed as extension agents in order to reduce the high ratio of an agent to farmers to promote effective contact between the agents and the farmers.

Also in order for the graduates (Extension agents) to perform most of their duties effectively, sufficient resources and incentives have to be

provided for them. These should include provision of adequate funds, facilities, training and other promotional opportunities. In addition, supervision and discipline have to be stepped up if the graduates (Agents) are to perform their roles effectively.

CHAPTER FIVE

5.1. SUMMARY OF MAJOR FINDINGS

5.1.1 Opinions of the College Graduates about their Training:

The graduates of the College were asked to give their opinions on the various aspects of the training they have received in the college. As regards job preparation, the respondents indicated offering all the subjects recommended for the College by the N National Board for Technical Education (NBTE) expept 26% of them who said they did not study Government and General Studies.

The study revealed that in descending order of importance, Rural Sociology, Agricultural Extension, Elements of Agricultural Economics, English Language and farm management were considered as the five most valuable subjects to their jobs while followed in order of least importance to their jobs, the following subjects were mentioned: General Studies, Government, Basic Fisheries, Basic Principles of land surveying and Mathematics. The graduates wished they had studied Hausa language while in the college in order to easy their communication with farmers. The most difficult subjects considered during their training were mathematics, statistics and field experimentation, Basic principles of land surveying, soil fertility and crop nutrition.

On rating their training programme, 99% of the graduates said they were satisfied with the training received. A chi-square test result shows no significant relationship between the respondents' views of their training programme and the various organisations they are working for.

With regard to the relevance of the training received with the work they are doing, all of them indicated that the training received was relevant to their job performance, irrespective of the organizations they were working for at the time of the study.

But in spite of the high level of satisfaction expressed by these graduates, 61% of them considered the college training facilities to be inadequate they therefore recommended varieties of field equipments for practical demonstration, equipment for laboratories library and workshop and also employment of qualified academic staff.

Non-availability of qualified teachers to teach certain key subjects, difficulty of the subject matter, non-availability of learning materials and attitudes of some teachers in the college were some of the difficulties faced by the graduates of the college during training.

The graduates sampled therefore suggested the followings measures for improving the training:

1. Limited number of only qualified candidates
2. should be admitted.
2. More attention should be paid to practicals.
3. Regular in-service training for the teachers.
4. Recruitment of qualified academic staff

5.1.2 Views of the Farmers Sampled on the College Graduates

The farmers sampled were asked to state their opinion about the relevance and effectiveness of agricultural training received by the graduates of the college. In order to achieve this objective the farmers were asked to state how frequently they interact with the graduates as extension agents. In the farmers' response, once in a month was the modal frequency of interaction, followed by once in three months; which shows that majority of the farmers were not frequently interacted with the extension agents; hence 50.7% of them said, they were not satisfied with the interaction.

On the rating of the activities of the graduates in influencing the farmers, adoption of the improved farm practices, 69.4% of them admitted that the activities of the extension agents are effective in influencing their adoption of improved farm practices.

In their opinion of the human relation aspect of the graduates, 42.7% and 49.3% of the farmers said they are fair and good respectively.

5.1.3 Views of the Employers on the College Graduates

The employers of the graduates were asked to give their opinions as regards the adequacy or inadequacy of the agricultural training programmes of the graduates of the College. In response 71.1% of the employers indicated that the graduates of the College were sufficiently trained for their jobs.

The few of them who are not satisfied with the graduates training, identified inability to comprehend simple instructions due to lack of basic communication skills as well as inadequate proficiency in skills as some of the most common deficiencies of the graduates.

The employers enumerated the following as the main obstacles to the achievement of the main goal of the training the graddates had received.

1. Lack of resources and incentives to carry out their expected roles.
2. Lack of employment of the graduates in the appropriate offices that required their skills.

In conclusion, the employers of the graduates therefore suggested the following to the college and the Government. To the college more attention should be given to practicals at all levels and proficiency in English language should be encouraged. To the Government, more employment opportunities for the graduates, and loans should be given to the graduates, especially those who are not employed. More working resources and incentives should be provided for the employed graduates to work with and to motivate them to be more productive.

5.1.4 Channels of Communication Used by the Graduates to Disseminate Information to Farmers

The graduates of the College indicated the use of various channels of communication to disseminate information of improved agricultural practices to farmers. The channels indicated were demonstration plots, home, office and farm visits, film show/video, letter writing, field days/tours, posters/pamphlets, radio/television and telephone. Among these channels, farm visits, radio/television and posters/pamphlets were frequently used. Those occasionally used were home and office visits, film show/video and field day/hours. Demonstration plots, letter writing and telephone are the channels not frequently used. The chi-square analysis shows that there is a significant

relationship between home and farm visits as well as field days/hours as channels of communication used by the graddates and the organization in which they are working. But there is no significant association between the frequency of utilization of other channels of communication and the organization they are working.

5.1.5 Channels of Communication Frequently Patronized by the Farmers

About 53% of the farmers indicated "fellow farmers" as the most frequent source of information they patronized, followed by radio/television and next by extension agents. Sources not frequently patronized are agricultural bulletins, newspapers and cinema.

The chi-square analysis shows that non of these channels of communication frequently patronized by the farmers have significant association with adoption of most of the improved agricultural practices, except fertilizer and herbicides which have significant association with radio/television channels, and contour farming with "fellow farmers".

5.1.6 Inventory and Frequency of Improved Practices Communicated to Farmers

According to the graduates surveyed, fertilizer, tractor hiring, storage chemical and crops such as

rice, cassava and maize were communicated frequently to the farmers in the study area. Those occassionally communicated are credit facilities, storage chemicals, citrus trees, and crops such as beans, groundnut, guinea corn and yam while modern spacing of planting, contour farming, herbicides and insecticides were less frequently communicated to the farmers.

A test of association between the types and improved agricultural practices communicated to the farmers by the graduates and the organizations they are working shows no statistically significant association between most of the types of improved agricultural practices communicated except in the case of rice and palm oil.

5.1.7 Awareness and Adoption of the Improved Practices Communicated to the Farmers

All of the farmers surveyed are aware of fertilizer, an average of 75.6% of them are aware of improved seeds and an average of 92.3% of them are aware of livestock/poultry production. A chi-square test analysis shows that farmers awareness of some of the improved practices depend on their geographical location.

On the issue of adoption after awareness of the improved practices, one hundred and forty eight of the sampled farmers, representing 98.7% indicated that they have adopted fertilizer, 61.3%, 36.7% and 85% of them have adopted storage chemicals, insecticides, and tractor hiring respectively. Also 54.7%, 57.3%, 54.7% and 39.3% of them have adopted improved rice, maize, cassava and newbreeds of livestock/poultry production respectively. On the whole, most of the improved practices have been made known to the farmers, but their adoptions are still low due to some constructs on the part of the farmers for adoption.

A chi-square test analysis shows that there are few improved practices which their adoption have significant relationship with the geographical location of the farmers within the state. These are tractor hiring, contour farming, cassava, yam and newbreed of livestock/poultry production which their adoption have significance relationship with farmers location.

5.1.8 Major Benefits Farmers Derived from Adopting Improved Practices

These are:

1. Increase in the farm total output per land area due to high yields.

2. More knowledge about crop production and protection.
3. Increase in total land area cultivation.
4. Reduction in the labour cost.
5. Quick maturity of some of the crops.
6. Good storage method.
7. Protection of some of the crop to diseases and pest attack.

5.1.9 Farmers Constraints to the Adoption of the Improved Practices

The study shows that late supply and inadequate quantity of farme inputs, high cost of farm inputs, low level of interaction with extension agents, lack of credits facility and distance from the supply centre to be the most frequent factors that limit adoption of improved practices by farmers in the study area. The study also revealed no evidence of incompatibility with local condition and cultural value, and poor transport as factors that limit adoption of improved agricultural practices among the sampled farmers.

5.1.10 Major Problems Confronting the Graduates in Performing their Jobs and Farmers Adoption of the Improved Practices

So many problems were enumerated by the graduates as constraints to their effective performance, farmers

also raised some problems as their constraints to adoption. Both of them (graduates and the farmers) gave their suggestions for improvement.

5.2 CONCLUSION

In this concluding part we highlight the broad views of the three groups of participants in this study on the assessment of the graduates of the College of Agriculture, Lafia. The graduates themselves expressed satisfaction with the training they have received and that the course curriculum is relevant to the job they were doing. However, they recommended improvement of practical equipment.

The farmers on the other hand are of the opinion that the graduates of the College have fair and good human relationship and their activities of extension services have great impact in influencing their adoption of agricultural innovation, but however, they were not satisfied with the frequency of the graduates interaction with them.

The employers of the graduates are of the view that the graduates of the college were sufficiently trained for their jobs performance but however, discovered inability to comprehend simple instructions due to problem of basic communication skills and inadequare degree of skills as some of

the common diffeciencies of the graduates. The employers also revealed that lack of resources and incentives for the graduates as well as lack of employment of the graduates in the appropriate offices that required their skills, are some of the factors that militate against the achievement of the main goal of the graduates training. They therefore offered their suggestions to the College and the Government for improvement.

It is also obvious from this study that the graduates of the College used various channels of communication to disseminate information of improved practices to farmers, although, some of the more potent channels were discovered to be less frequently used. The study also revealed that the farmers patronized their "fellow farmers," radio/television and extension agents more frequently as sources of information on improved agricultural practices than other sources. The farmers were communicated with various improved practices by the graduates, although it was discovered that some of them were more frequently communicated than others. Perhaps as a result of the activities of the graduates the farmers became aware of the improved farm practices although their adoption rate seems to be low due to some constraints.

The farmers identified these constraints to be late supply of farm input, inadequate quantity of farm inputs, and high cost of farm inputs, as well as low level of interaction with extension agents, lack of credit facility and distance from the supply centre of farm inputs as some of the constraints to their adoption of improved practices. The farmers own problems were compounded by the problems which also confronted the graduates and which made them less effective as rural change agents.

5.3 RECOMMENDATIONS

Drawing largely from the result of the analysis, the following are offered to improve the performance of the graduates of the college. More funds should be made available to the College for the improvement of the training facilities. The purchase of the facilities should be directly done, instead of purchase through contract. This is to overcome the problems associated with contract inflations.

In view of the economic crisis in the country which undoubtedly makes it impossible for the government to provide all the needed facilities to the numerous institutions of agricultural training in the country, one would like to suggest that the number of colleges of agriculture should be reduced

so that the limited resources available can be used to better equip those that remain. In the case of Plateau State, farm training centre at Gidan Adamu, Horticultural Training School at Gangnum, and Home Economics training centre at Riyom could all be merged with Plateau State College of Agriculture, Lafia. In the same vein, admission to the College should be kept to manageable sizes so that class sizes can be kept small to enhance effective practical training.

There should be a definite policy on ways by which all graduates from the college should be gainfully employed in food production directly on the farm by the way of establishing agricultural graduates self-employment schemes.

Government should make it easy for farmers to have access to rural banks where different types of credits should be made available according to the needs of the farmers.

Agricultural inputs should be made available to farmers at the right time and the habits of hoarding these inputs by some individuals or appointed retailers/ wholesalers should be discouraged.

In-service training recommended for the graduates of the college and their trainers at Lafia, so that,

they can keep abreast of development in agricultural practices and agricultural education.

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APPENDICES

APPENDIX I

GRADUATES QUESTIONNAIRE

How are you?

My name is Patrick A. Osabo. I am Postgraduate student at the Department of Geography, A.B.U. Zaria, carrying out an educational research on the topic: "An Assessment of the Graduates of College of Agriculture Lafia Nasarawa State as Effective Extension Agents". Your kind assistance is required in order to make this research a success.

Thanks for your cooperation.

A. GENERAL INFORMATION

1. Name:_____ 2. Age:_____

3. Sex:_____

4. Marital Status (Married or Single)_____

5. Name of the Organization/Ministry you are working:

_____

6. Your year of graduation from College of Agric., Lafia:_____

7. First job after graduation:_____

8. Present Post:_____

B. JOB PREPARATION

1. Indicate the ticking, the subjects you did not study during your agricultural training course at Lafia College of Agriculture.

Element of Agricultural Economics

Rural Sociology

Farm Management

Agricultural Extension

Sheep, Goat and Swine Production

Animal Nutrition

Poultry Production

Genetic and Bree Ding

Beef and Dairy Production

Basic Fisheries Technology

Introduction to Animal Health

Basic Principles of Land Surveying

Basic Workshop Practice

Farm Power and Mechanization

Principle of Crop Production

Farm Practices

Annual Crops

Horticulture

Statistics and Field Experimentation

English

Mathematics

Pedology and Soil Survey

Soil and Water Management

Soil Fertility and Crop Nutrition

Government

General Studies

2. From the list, indicate in order of importance 5 subjects you consider most valuable in your job.

1.

2.

3.

4.

5.

3. List 5 subjects in order of least importance to your job:

1.

2.

3.

4.

5.

4. Indicate which subject you wish to have studied while in the school.

1.

2.

3.

4.

Give reason(s) for your choice:----------

5. Which subject(s) do you wish you had not studied while in the school?

1.

2.

3.

Give reason(s) for your choice:----------

6. Which subject(s) did you find difficult during your training and why, list h them:

SUBJECTS HATED MOST REASONS

1.

2.

3.

7. Which subject(s) did you like best and why?

SUBJECT LIKED BEST	REASONS
1.	
2.	
3.	

6. PROGRAMME RATING

1. How satisfied are you with the training you received at Plateau State College of Agriculture, Lafia:

   (a) Very Satisfied ( ) (b) Satisfied ( )

   (c) Undicided ( ) (d) Not Satisfied ( )

2. How do you rate your agricultural training in relation to your present job?

   (a) Very relavant ( ) (b) Relevant ( )

   (c) Undecided ( ) (d) Not relevant ( )

3. Did you consider the training facilities at the College adequate for your type of course?

   Yes ( ) No ( )

4. If no, what training facilities would you recommend for the College?

5. Did you experience any difficulty during your training? Yes ( ) No ( )

6. If yes, which if any, of the following aspect concerned with your training programme do you see as the proper cause(s) of your difficulty?

   (a) Non-availability of qualified teachers to teachs the necessary subjects ( )

   (b) Difficulty of the subjects matter ( )

   (c) Non-availability of learning materials ( )

   (d) Attitudes of some teachers in the school (

   (e) Others, specify:----------

7. If you were to be re-admitted to do the same course, would you want to come to the College, If given the chance: Yes ( ) No ( )

8. If no, why? (Indicate appropriate answer(s)

   a) Inadequate supply of training facilities ( )

   b) Attitude of some staff members ( )

   c) Location of the College ( )

   d) Any other reason(s)

9. What are your suggestion(s) for improvement of the training? State below:

1. How regular do you use the following sources of communication below to disseminate information to farmers:

No.	Source	Never	Occassionally	Freq
1.	Demonstration Plots			
2.	Home visits			
3.	Farm visits			
4.	Office visits			
5.	Film show/Video			
6.	Letter Writing			
7.	Field day/tours			
8.	Posters/Pamphlets			
9.	Radio/television			
10.	Telephone			

2. Indicate how regular you educate farmers on the use of the following improved agricultural practices:

No.	Improved Practices	Never	Occassionally	Freq.
1.	Fertilizer			
2.	Insecticides			

3. Herbicides
4. Tractor Hiring
5. Modern spacing of planting
6. Credit facility
7. Storage chemicals
8. Contour farming
9. Citrus trees
10. Improved Seeds
    a) Rice
    b) Maize
    c) Cassava
    d) Palm oil
    e) Bean
    f) Groundnut
    g) Millet
    h) Guinea corn
    i) Yam
11. Poultry/Livestock
    a) New breeds
    b) Vaccination
    c) Balanced feed
    d) Housing

3. Mention 3 major problems you encounter in performing your job:
    1)
    2)
    3)
4. What are your suggestions for improvement:

D. JOB SATISFACTION

1. What lured you into agricultural job or career?

   a) It attracts high salary

   b) The prestige attached to the work

   c) Promotion aspect t is bright

   d) It is the only job opening I could find

   e) Interest

2. What do you think about your job?

   a) Quite interesting and exciting

   b) Exacting and challenging

   c) Boring and uninterested.

3. State very briefly, the aspect of your job you enjoy most, and why?

   Aspect of job enjoyed most Reason

4. Which aspect of your job, do you enjoy **least** and why?

   Aspect of job enjoyed least Reason

5. Do you consider that you have (indicate by ticking)

   a) Too much work to do ( )
   b) Just enough work to do ( )
   c) Too little work to do ( )
   d) Nothing to do ( )

6. What do you thin about your working environment and and the facilities provided for work? (tick appropriately)

   a) Quite sufficient ( )
   b) Sufficient ( )
   c) Not sufficient ( )

7. Are you satisfied with your Jobs (Yes ( ) No ( )

8. Do you want to stay in the job? Yes ( ) No ( )

9. If yes, why?

a) Salary is reasonable ( )
b) Not easy to get another job ( )
c) Condition of service is good ( )
d) Any other reason, state:----------

---

10. If no, why: (Tick the appropriate answer)

a) I want to further my studies and my leader stands on my way ( )
b) The job is too ruralic ( )
c) The job is too demanding ( )
d) The condition of service is relatively poor ( )

11. Through what means are you rewarded for your hard work? (Tick the appropriate answer (s)

a) Bonus at the end of the year ( )
b) Recommended for further studies ( )
c) Recommended for promotion ( )
d) Any other means, state----------

---

12. Through what means are you punished for your neglect of duty?

a) Prevented from further studies ( )
b) Demotion of salary scale ( )
c) Dismissal from work ( )
d) Any other means, state:----------

APPENDIX II

EMPLOYERS' QUESTIONNAIRE

1. Name of Minstry/Organization ----------

---

2. Rank:----------

3. Number of agricultural technicians trained from College of Agriculture, Lafia working with you.
(WRITE IN THE BOX BELOW)



4. Of this number, how many are males and how many are females?

No. of females	No. of Males

5. List the specific job(s) you assign to the College of Agriculture graduates who are under your leadership:

   1.
   2.
   3.
   4.
   5.

6. Of the five jobs listed which of the two sexes (male and female) do you consider to be more competent in performing such duties?

   Male ( ) Female ( )

7. Give reason(s) for your choice: ----------

---

8. How sufficient do you feel the graduates of the College have been prepared for this job?

   a) Very sufficient ( )

   b) Sufficient ( ) (c) Not sufficient ( )

9. What have you noted as the most common difficiencies in the employment preparation of the graduates?

   a) Inadequate degree of skills ( )

   b) Lack of human relation ( )

   c) Inability to comprehend simple instructions due to problem of basic communication skills ( )

   d) Any other, specify: ----------

10. Based on the main goal of the training of these graduates (agricultural middle-level manpower) there are several problems confronting them after graduation. From your experience, what are the main problems you consider as obstacles to the fulfilment of the goal of their training? Describe each problem very clearly and briefly in the space below.

No.	The Main Problems	Brief and clear description of each
1.		
2.		
3		

11. In your opinion, how can these problems be solved? Give some suggestions in the space below:

_____

_____

_____

_____

APPENDIX III

FARMERS' QUESTIONNAIRE

1. Name of Village:----------
2. Tribe:---------- 3. How Old are you?
4. Your Religion:----------
5. How many Wives do you have:----------
6. How many Children do you have who are:
   i) Males:----------
   ii) Females ----------
7. What is your level of Education?
   a) Did not attend school ( )
   b) Never completed primary school ( )
   c) Completed primary school ( )
   d) Attempted secondary school ( )
   e) Completed secondary school ( )
   f) Post-secondary training ( )
8. What language can you speak?----------
9. Which language can you write?----------
10. What is your primary education?----------
11. What is your secondary occupation:----------

GENERAL FARM OPERATIONS

1. How many farms do you have:----------
2. What is the size of your largest farm?----------
3. What is the size of your farm lands (cultivated) put together?----------
4. How did you acquire your farm land(s)?----------

a) Inheritance ( ) (b) Rentage ( )

c) Purchase ( ) (d) Gifts ( )

e) Lease ( )

5. For what purpose do you farm?

a) Commercial ( ) (b) Subsistence ( )

c) Both ( )

6. What type of labour do you employ on your farm?

a) Family ( ) (b) Hired ( )

c) Communal ( ) (d) All ( )

7. List the common crops you grow:

1. 2.

3. 4.

5. 6.

8. Indicate the types of livestock (if any) you keep.

1. 2.

3. 4.

5. 6.

ADOPTION RATE OF IMPROVED PRACTICES

1. Which of the following recommended improved agricultural practices are you aware of and ever tried?

No.	Improved Practices	Aware of	Not Aware of	Tried	Not Tri
1.	Fertilizer				
2.	Insecticides				
3.	Herbicides				
4.	Tractor Hiring				

No	Improved Practices	Aware of	Not Aware of	Tried	Not Tri
5.	Modern spacing of planting				
6.	Credit facility				
7.	Storage Chemicals				
8.	Contour Farming				
9.	Citrus trees				
10.	Improved Seeds				
	a) Rice				
	b) Maize				
	c) Cassava				
	d) Palm oil				
	e) Beans				
	f) Groundnut				
	g) Millet				
	h) Guinea corn				
	i) Yam				
11.	Livestock/Poultry				
	a) Newbreeds				
	b) Vaccination				
	c) Balanced feed				
	d) Housing				

2. Indicate your patronage of the underlisted sources of information

No.	Sources	Never	Occassionally	Frequently
1.	Extension agents			
2.	Fellow farmers			
3.	Posters			
4.	Agricultural bulletins			
5.	Radio/TV			
6.	Newspapers			
7.	Cinemas			

3. Rate the following factors as they limit your adoption of improved agricultural practices.

Note: Your scale of rating are 1-3 (1= much) 2 = little, 3= not at all).

1. Late supply of farm inputs
2. Inadequate quantity of farm inputs
3. High cost of farm input
4. Low level of interaction with extension agents
5. Lack of credit facility
6. Inability of meet the conditionality of improved practices
7. Poor transport
8. Distance from the supply centre
9. Incompatibility with local condition and cultural value.

4. Briefly enumerate some of the major benefits you have derived from adopting improved agricultural practices:

1. 2.

3. 4.

5. 6.

EVALUATION/PERCEPTION OF THE EXTENSION AGENTS

1. What has been happening to your total farm output?

a) Increasing ( ) (b) Declining ( )

c) Static ( )

2. If it is on the increase, can you attribute this to the activities of extension agents? Yes ( ) No ( )

3. If no. what are the reasons for the increase of your farm total output?

1.

2.

3.

4. If yes, which of the following duties performed by the agents aided most oto your increase of farm output? (Indicating by assigning No. 1 to the one that contributed most, 2 to the next etc.

a) Providing information

b) Holding meetings, hone and farm visits

c) Distributing farm inputs

d) Providing background information

e) Conducting demonstration

f) Any other, specify

5. How often do you interact with an extension agent?

   a) Once a week ( ) (b) Once in 2 weeks ( )

   c) Once a month ( ) (d) Once in 3 months ( )

6. What is your perception of the interraction?

   a) Very satisfactory (b) Satisfactory

   c) Not satisfactory

7. How do you rate the activities of extension agents in influencing you to adopt better farm practices?

   a) Very Effective (b) Effective

   b) Not Effective

8. How do you rate their expertise knowledge

   a) Knowledgeable ( )

   b) Not knowledgeable ( )

9. How do you perceive their human relationship, particularly to farmers?

   a) Very poor ( )

   b) Poor ( )

   c) Fair ( )

   d) Good

10. What are your suggestions for improvement of agricultural extension agents activities?