

RELATIONSHIPS BETWEEN FARMERS SCGIO-ECONOMIC
CHARACTERISTICS AND SOURCES OF FARM
INFORMATION IN GUSAU LOCAL
GOVERNMENT AREA OF SOKOTO STATE

BY

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ments for the Degree of Master of Science
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DECLARATION


I hereby declare that this thesis has been written by me and that it is a record of my own research work. It has not been presented before in any previous application for a higher degree or reputable presentation elsewhere. All borrowed ideas have been duly acknowledged by means of references and quotation marks.

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28th April 1987

CERTIFICATION

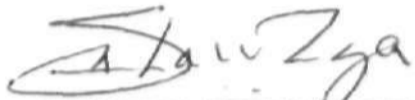
This thesis entitled "Relationship between Farmers' Socio-economic Characteristics and Sources of Information in Gusau Local Government Area of Sokoto State" meets the regulations governing the Degree of Master of Science of Ahmadu Bello University, Zaria, and is approved for its contribution to scientific knowledge and literary presentation.




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DEDICATION

This thesis is dedicated to Chief J.C. Matanni
for initiating my educational career, Felicia
Samuel Adegbola, Michael Cluremi Oni and Dorcas
Aina.

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ABSTRACT

The present Military Government and indeed past governments in Nigeria are very much interested in the development of agriculture. To this end, several government initiated agricultural development programmes and projects have been embarked upon. This study is an attempt to investigate a little and vital but mostly neglected aspect of the process of agricultural development. This aspect relates to the question of the sources of farm information used by farmers in the rural areas of the country.

This study examined the type of information sources used by the farmers in three selected villages in Gusau Local Government Area of Sokoto State. This included the most important source of farm information to the farmers and why the source was the most important.

The study also examined whether or not there were significant relationships between some socio-economic characteristics of the farmers and their sources of information. The study finally discussed the implications of these findings for future action by agricultural policy makers.

The results of the various findings showed that about 71% of the farmers interviewed used radio as

their source of information. The second most used source of farm information was neighbours. Over 68% of the farmers used this source of information. The third most used source of farm information was the agricultural extension workers. About 60% of the farmers used this source.

The analysis further showed that the most important source of farm information according to the farmers was agricultural extension workers. Forty percent (40%) of the farmers considered this source to be the most important. The second most important source of farm information according to the farmers was radio. About 22% considered this source to be the most important. The third most important source of farm information was neighbours. About 21% considered this as the most important source of farm information.

The analysis equally revealed that farmers considered agricultural extension workers as the most important source of information for various reasons. About 33% claimed that agricultural extension workers explained agricultural practices in detail and demonstrated for them to see. Thirty percent (30%) claimed that the extension workers were their friends and that they were always together, while 20% claimed

that the extension workers lived with them in the village and so they trusted them as givers of farm information.

Various other reasons were also adduced for choosing radio, neighbours, friends and relatives and newsletter/pamphlets as the most important sources of farm information.

It was found that farmers used two sources of farm information and four sources of farm information about the same number of times. This was because 30% of the farmers used two sources of information while another 30% used four sources of information.

Ten empirical hypotheses were tested in order to determine whether there were significant relationships at 0.05 level between the socio-economic characteristics of the farmers and their sources of farm information. The sources of farm information used in testing the empirical hypotheses were neighbours (informal source of information) radio (mass media source of information), agricultural extension workers (government or agricultural agencies source of information).

The chi-square statistics showed that there was a significant relationship between farmers with high level of adult education and the use of extension

workers. This implied that those farmers with high level of adult education tended to use extension workers than those with low level of adult education.

The analysis equally revealed that there was a significant relationship between large farm size and the use of extension workers as source of information. This implied that farmers with large farm size tended to use extension workers than those with small farm size.

The findings also revealed that there was a significant relationship between high level farm practices adoption and the use of extension workers as source of farm information. This meant that farmers who adopted more of the new farm practices introduced in the area tended to use extension workers than those with low level of farm practices adoption.

The analysis also showed that there was a significant relationship between high level of living and the use of radio as source of farm information. This implied that farmers with a high level of living tended to use radio than those with low level of living.

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CHAPTER 1

INTRODUCTION

The improvement and development of agriculture in many developing countries has been seen as an integral part of the overall economic development of these countries. In Nigeria, for instance, agriculture plays an important part in the welfare of the people. Norman (1970) claimed that before the first export of petroleum in 1958, agriculture contributed between 70 to 80 percent of the total value of Nigerian exports.

Agriculture was the backbone of Nigeria's economy from colonial and early years of independence. The agricultural produce included such commodities as palm oil, groundnuts, cocoa and rubber. Kano city was famous for its groundnut pyramids and Ondo for its cocoa. It was also the largest employer of labour in the country.

However, the importance of agriculture in the Nigerian economy has changed rapidly over the years. The once famous foreign exchange earner cannot even feed Nigeria's rapid growing population. Nigeria's oil boom in the late 1960s and early 1970s changed the trend and agriculture was almost totally neglected. During the oil boom, there was plenty of money and people started gradually to leave the villages for the towns and cities for white-collar jobs and contracts.

Food items and other commodities which could be produced locally were imported with millions of naira. Between 1971 and the end of 1975, about \$700 million had been spent on the importation of foodstuff into the country (Federal Ministry of Information, 1977:27). While launching the Cross River State Agricultural Development Project (ADP) recently, the state military governor, Dan Archibong claimed that Nigeria's food bills increased from \$42.3 million in 1967 to nearly \$2.06 billion in 1983 (Vanguard 13th December, 1985 p.1). The money spent on food importation could have been used to develop the country's agriculture, but everyone was carried away by the oil boom. It was as if the oil boom would last forever.

All of a sudden, there was no more oil boom and the revenue from oil decreased so much that the nation could not afford enough money for foodstuff importation. The government then started policies to revamp agriculture to play a significant role in the nation's economy like it used to be before.

In the third national development plan (1975-80), it was stated that agriculture and its related activities will continue to be the mainstay of Nigeria's economy in the foreseeable future. This meant that agriculture would continue to furnish the bulk of the nation's employment opportunities. It added that agriculture

had to meet most of the country's raw material requirements for local industries and for export which would continue to be an important earner of foreign exchange.

In the current National Development Plan (1981-85), the objectives of the plan in agricultural sector are:

- (1) To achieve increased production of food and other raw materials to meet the needs of a growing population and raising industrial production. A basic objective in this respect was the attainment of self-sufficiency in food production in the plan period.
- (2) To achieve increased production and processing of export crops with a view to expanding and diversifying earnings in this respect. A target of seven years was set for the revival of Nigeria's cash crops.
- (3) The expansion of employment opportunities in agricultural sector to absorb the increasing labour force of the nation.

In order to achieve government's objectives vis-a-vis agriculture as stated in the development plans, several agricultural development policies were conceived and implemented. The programmes embarked

upon included the National Accelerated Food Production Programme (N.F.P.P.). This was designed specifically to increase the production of rice, maize, guineacorn, millet, wheat and cassava, which constituted the main staple food crops in Nigeria. Three N.F.P.P. national centres were established at Ibadan, Samaru and Umudike.

Another programme embarked upon was the Operation Feed the Nation programme (OFN). It was launched in 1976. This was essentially a publicity drive to make Nigerians aware of the national need to increase domestic food production. One of its most important achievements was that it brought to the minds of Nigerians the importance of agriculture.

Agro-service centres were also established in various parts of the country. These were directly linked and formed part of the N.F.P.P. They were intended to function as self-financing input distribution and crop marketing centres for which farmers can obtain improved inputs such as seeds, fertilizers and insecticides and to which they can sell their crop produce.

There was also the establishment of Agricultural Development Projects (ADPs). These are series of integrated agricultural projects which were initiated

in 1975, at Gusau in Sokoto State, Funtua in Kaduna State and Gombe in Bauchi State. They were designed to bring the combined concepts of OPH, H.FPP and Agro-Service Centre programmes to a defined rural population. They concentrated on providing inputs such as fertilizers, pesticides, farm machinery and credit facilities to enable farmers to purchase inputs. They also give extension and training in the use of improved farming methods.

A lot of capital was put into these programmes yet agriculture has remained underdeveloped and has refused to pick up. Various studies have been conducted by researchers into the various agricultural programmes of the Federal Government. These studies were aimed at determining the successes and failures of these programmes. A great deal of recommendations have been offered to the government on how to improve, increase and enhance agricultural and food production in the country. For example, Clark and Akinbode (1968), stressed the importance of sources of farm information if rural farmers were to adopt new methods of farming. Voh (1979) reported that a high proportion of respondents in Giwa area of Kaduna State made use of radio as their source of information on agricultural methods. D'Silva *et al.* (1981) found that radio was by far the most important source of farm information

in Funtua Agricultural Project in Kaduna State. The importance of radio was further illustrated by the fact that over 50 percent of farmers in Funtua Agricultural Development Project owned radios.

The importance placed on sources of farm information by farmers from past studies has necessitated the undertaking of this study. Though many past studies have concerned themselves with the sources of information which farmers used, there have been some limitations. A limitation of past studies is that few have concerned themselves with the relationships between socio-economic characteristics of farmers and their sources of farm information especially in the northern parts of the country. Thus, the main focus of this study is to ascertain the extent to which the socio-economic characteristics of the farmers influence the choice of sources of farm information. This problem is going to be examined by testing some empirical hypotheses. In addition, the various sources of information used by farmers will be examined, to determine which is the most important source of information and why farmers regarded the chosen sources as the most important.

1.1 Nature of the Problem

Farmers in any given society are not amorphous. They have some relative degree of differentiation,

either in terms of the scale of their farming enterprises or in terms of their socio-economic characteristics. For this reason, a single source of information may not be sufficient to cover all categories of farmers. This study, therefore, aims at ascertaining the relationships between the socio-economic characteristics of the farmers in Gusau Local Government Area of Sokoto State and their sources of farm information. Secondly, the study seeks to find out the various sources of information used by the farmers and which of them is the most important source of information and why.

Lionberger (1970), claims that in traditional agricultural practice, information about farming, let alone scientific information, is not a part of the farmers life because farmers learn by doing. He further claims that family-operated farm is an ongoing, self-perpetuating economic unit which teaches succeeding family members simply by doing. This means that agricultural information is so much a part of doing that it is probably never recognized as information. However, all of these gradually change as agriculture moves from traditional to modern. This is because the farmers become more sophisticated, more dependent on others for goods and services, his needs become more complex and diversified.

The farmer, in trying to modernise his farming enterprise will come to recognize farm information as an essential element of a developing agriculture. The farmer must recognize that information about agriculture exists and that one source is better than another.

Farm operators, due to their different socio-economic characteristics would regard the sources of information differently. This is because different socio-economic positions expose individuals to different things. A farmer's socio-economic characteristics would expose him only to certain sources and he will come to appreciate that source in relation to his socio-economic characteristics. This will make him use certain sources of information which are suitable for his characteristics. For example, one would expect that farmers who can read and write would make use of pamphlets and newsletters as their source of farm information. Also, one would expect that farmers who cannot read nor write would make use of extension worker as their source of getting farm information. It is therefore, the problem of this thesis to examine some socio-economic characteristics of the farmers in the area of study and the sources of farm information they used. This is going to be achieved by testing a series of empirical hypotheses.

1.2 Objectives of the Study

The general objective of the study is to examine the relationships between farmers socio-economic characteristics and their sources of farm information in Gusau Local Government Area of Sokoto State.

The specific objectives of the study are:

- (1) To determine the type of information sources used by the farmers in the study area. This includes the most important source of farm information used and why the source is the most important.
- (2) To determine whether or not there are significant relationships between some socio-economic characteristics of the farmers and their sources of information. The chosen socio-economic variables are age, household size, level of formal education, level of adult education, size of farm, organizational membership, adoption of farm practices, level of living, length of farming experience and farm income.
- (3) To discuss the implications of the findings for future action by agricultural policy makers.

1.3 Importance and Relevance of the Study

The importance of sources of farm information to farmers cannot be over-emphasized. This is because for farmers to manage successfully with the rapid pace of change in agricultural practices in modern times, they must be aware of the sources of information available to them to enable them use the information to better their farming activities. It would be a waste of human and material resources to continue to accumulate research findings on agricultural practices without knowing how the findings get to the ultimate consumers who are the peasant farmers.

The theoretical importance of the study is that it will add to existing knowledge the fact that dissemination of farm information is a very important factor which aids the adoption of new farm practices. When the sources of information which Gusau farmers used has been identified taking into account the socio-economic characteristics of the farmers, it is hoped that such an analysis will help to re-examine the relevance or otherwise of the sources of information which are at present being used in the area. If a farmer's socio-economic characteristics forces him to rely on one source of information, the adoption of the farm practices could not be as fast as being anticipated. This is because he is handicapped by his socio-economic position.

For practical purposes, the knowledge of this will be of great value to agricultural information communicators. This is because it will help them in appropriate planning of the communication strategy which may result in the quick acceptance of new farming methods. To make efficient use of the information sources, the agricultural information communicators are expected to know the preference of farmers for different information sources. If farmers preference for sources of information is known, these sources could be used more effectively. If the socio-economic characteristics of those who prefer certain sources are known it would even be more effective. This is because the agricultural information communicator will be able to design different information sources for different categories of farmers.

1.4 Organization of Thesis

This thesis is divided into five chapters. Chapter one deals with the introduction, the nature of the problem, the objectives of the study and the importance and relevance of the study.

Chapter two focuses on the literature review, the conceptual framework for the study, operational indices or definitions of variables and their measurement, and the working hypotheses. Chapter

three is on methods and procedures. This includes the unit of analysis, the area of study, the method of data collection, the sampling technique and the statistical analysis used in the study.

Chapter four deals with the findings, and chapter five which is the final chapter focuses on the discussions of findings, their implications, conclusions and recommendations.

LITERATURE REVIEW

2.1 Introduction

The literature review aspect of the study is divided into two sections. Section one deals with a review of literature on sources of farm information, while section two deals with a review of literature on the socio-economic characteristics of farmers as they relate to sources of farm information.

2.2 Literature Review on Sources of Farm Information

Past studies on sources of farm information are many, especially studies carried out in the United States of America. These include the one conducted by Copp et al.(1950). This study classified sources of farm information of Pennsylvaniaian dairy farmers into:

- (1) Mass media (that is, farm magazines and papers)
- (2) Radio
- (3) Printed extension, that is, circular letters and bulletins
- (4) Oral extension, that is, office calls, meetings, farm visits, method demonstrations, tours and field days.
- (5) Peer influence, that is, neighbours, friends and relatives.

- (6) Commercial media, this includes both printed and oral sources of information and
- (7) The classroom which includes vocational agriculture and veteran's training.

Rogers and Meynen (1965), classified sources of farm information in terms of:

- (1) Mass media sources or impersonal-cosmopolite sources. This source of information include radio, newspapers, magazines and television.
- (2) Personal-cosmopolite sources of information. This includes communication with extension agents, farm supply store personnel, and farmers from other neighbourhoods.
- (3) Person-localite sources. This includes communication with neighbour, friends and family and
- (4) Self, which is mainly personal experience with the innovation on one's own farm.

Rogers and Shoemaker (1971) classified sources of farm information as:

- (1) Interpersonal or mass media. This include face to face exchange between two or more individuals while mass media includes radio, television and newspapers and farm magazines.

- (2) The source of information as originating from either localite or cosmopolite sources.

Classification of sources of farm information has also been based on personal and impersonal sources (Beal and Rogers, 1960). Personal sources of information are relatives, friends, neighbours, landlords and direct contact with extension agents. Impersonal sources include farm magazines, newspapers, radio, television and university bulletins.

Sources of farm information have also been classified by Lionberger (1963), in terms of an individual, institutions or agencies sought to be the communicators of new ideas. Individual communicators of new ideas include local dealers and salesman. Institutions concerned with communications of new ideas include Government or agricultural extension departments.

Mawby and Maver (1961), investigated twenty four sources of information, out of these, six were non-communicative and eighteen were communicative. The non-communicative sources of information were those which can be used without contacting another person verbally or in writing. Experience and trial by error on whole farm operations are good examples of non-communicative sources of information. Communicative

sources of farm information require that information passes from one person to another. Agricultural agencies, salesmen, radio and television are good examples of communicative sources of information.

In Nigeria, Gill (1960), reported four sources of farm information in Northern Nigeria, namely:

- (1) Agricultural "mallam" or extension workers
- (2) Agricultural shows
- (3) Agricultural films
- (4) Agricultural demonstration farms.

Also, Yazidu (1973), found that sources of farm information in Northern States of Nigeria can be classified under three main headings namely:

- (1) Traditional meetings, such as wedding, naming and harvest ceremonies and also discussions with traditional leaders or occupational leaders.
- (2) Official sources, this includes government ministries and local government authorities which use different media to communicate to the people.
- (3) Commercial sources, whereby commercial firms use lorries and vans equipped with public

address system to advertise their products, such products include insecticides and fungicides. The vans or lorries go round on market days from one market to another selling their products.

Akinbode and Clark (1968), reported that farmers in western state of Nigeria found helpful the extension officers, the leaders of farm cooperatives and occasionally a "successful farmer" as their sources of farm information. Although the radio and newspapers provided some general information about farming, the farmers reported that they did not receive specific help with their individual problems from these sources pertaining to the adoption of three farm practices introduced in the area.

Voh (1979), reported that extension workers, radio, village head, other farmers, company salesman and friends were identified as farmers sources of farm in the listed order in Giwa district of Kaduna State of Nigeria.

D'Silva et al. (1981), reported radio was by far the most important source of information in Funtua agricultural development project in Kaduna State. This was followed by visits to farm service centres and extension agents. Others include visit to

demonstration plot, traders, village leaders, other farmers and village agricultural committee members.

2.3 Literature Review on Socio-Economic Characteristics of Farmers as they Relate to Sources of Farm Information

Studies carried out in the United States of America have shown that sources of information used by farmers depended on the type of agricultural practice and the socio-economic status of the farmers. For example, Lionberger (1955, 1968), reported a close association between contacts with sources of farm information and the level of education of farmers, farm income and the size of farm they possessed.

Wilkening (1950, 1952), reported that access to sources of farm information depended upon a number of factors. These may be situational, such as the physical isolation of the farm or the absence of vocational agricultural instruction in the local high school. He reported that socio-economic characteristics of farmers and nature of practices (whether the practice is associated with long established farm practices or newly introduced ones) determined the source of information sought by farmers. The information about long established farm practices was received from non-institutionalized sources while information about newly introduced practices was acquired from

institutionalized contacts, such as agricultural extension service, government agencies and adult farm classes.

Wilson and Gallup (1958) reported that responses regarding the use of sources of farm information were related to such factors as income, status of farmer and tenure.

Hawby and Haver (1961), reported that variation in sources of information used in securing a given type of information was associated with educational background, experiences, personal situation, size of farm, type of farm and farm group meeting attendance.

Studies conducted in India by Jha and Singh (1956), found significant relationship between levels of education, age of farmers and size of holdings and sources of information used by farmers. Also, studies by Sharma (1956), in India found that education, economic status and caste system are important factors which affect the use of modern communication with farmers.

Sawhney (1957) found in India that with increasing education, there was an increasing use of mass media sources of information.

Mawby and Daver (1961), found that the use of experimental station and extension service publications as a source of information correlated with the level of education in the United State. As the level of education increased, the percentage of farmers using government people as a source of information increased. The number of information sources used by farmers also increased with the level of education.

Kivlin et al. (1971), found that the better educated high caste Hindu more frequently use mass media as a source of information in India.

In Nigeria, Patel and Ekpera (1978), found that there is an association between farmers' socio-economic characteristics and the use of various sources of farm information. Also, in Giwa District of Kaduna State, Nigeria, Dogunjoko (1983) found significant correlation between the use of radio as a source of information and such factors as age, length of farming experience and net annual income.

It is evident from the literature review that farmers use a variety of sources of information in their farming operation and that researchers have classified or categorized these sources of information in various ways. It is also evident that the socio-economic characteristics of farmers play important

role in determining and selecting the type of information sources farmers use in their farming operations.

2.4 Conceptual Framework for the Study

According to Nauta (1972), information is news, what is known already is no information. So, something is information to the extent that it is unknown, unexpected or surprising. Nauta claimed that information has a central place to play in the concrete structures and processes of the humanities in various ways such as: the conveyance of intelligence in the press and television, as well as in education, the development of social organizations, the mechanism of thinking and dreaming of memory and emotions and human reality of being a person with ultimate concern and belief.

Yazidu (1983), 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." Yazidu also enumerated six importance of agricultural information. These were:

- (1) Agricultural information provides ideas for

the improvement of crops and livestock of the rural farmers.

- (2) Agricultural information provides best quality seed or livestock which the farmer can use for maximum return.
- (3) It assists farmers to combat pest and diseases of crops and livestock.
- (4) It educates the farmer on agricultural policies of the government which affect production of his 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 coordinated research efforts.

However, the socio-economic characteristics of the farmers will be a great determinant as to whether or not the importance of agricultural information will be taken advantage of by the farmers. This can be achieved through the use of various sources of farm information available to the farmers.

Raza (1969) was of the view that socio-economic status has three major dimensions: economic, social and cultural. These dimensions were measured through variables like income and land holdings, material style of life and education respectively. However,

there are many factors which can determine a person's access to income, land holding, material style of life and education. One of these factors is the mode of production in the society. Abdullahi (1983), borrowing idea from Marx claimed that it is within historical formations that we find modes of production which determine the nature of and form of social organization of production. The concept of modes of production, social formation, the nature and form of generation of surplus and how the surplus is appropriated and distributed within a given social and economic formation implied the existence of classes and social groups in the society.

Weber (1947), spoke of a class as a number of people who have in common a specific casual component of their life chances. Life chances is sometimes interpreted as referring to vital statistics (that is, the chances for survival or of reaching certain age), Weber himself seemed primarily concerned with the acquisition of goods and property, the achievement of a level of living, and a kind of personal life experience.

The villages in which this study was conducted were Kotorkoshi, Mada and Fucheri all in Gusau Local Government Area of Sokoto State. These societies

have passed from pre-colonial mode of production and social formation to the present peripheral capitalist social formation in which the emergent capitalist mode of production assumes dominance. This study acknowledges the impact of these forces of modes of production and social formation in shaping the socio-economic characteristics of the farmers in the area of this study.

One of the basic features of capitalist mode of production is that the economic system is organised and controlled by the owners of capital. The chief elements being competition, profit supply and demand. This implies that those with capital would be able to afford or acquire goods and property and achieve a high level of living. Capital as used in this study could be seen in terms of farm income, level of living, and farm size. These variables have been chosen because some of them have been found to be significantly related to sources of farm information from the literature review.

The theoretical model that has been used in this study states that the various socio-economic variables listed above are related to the sources of farm information which the farmers will use. Each of the variables has been grouped into three categories namely: low, medium and high. This was done to determine

which category of farmers used a particular source of information the more.

2.5 Operational Indices or definitions of Variables and their Measurement

The operational indices or definition of variables and their measurement defines the variables that were used in the study and how they have been measured.

2.5.1 Independent Variables

These are the socio-economic variables. There are many socio-economic variables in sociological analysis. However, the ones used in this study were as follows:

(1) Age

This refers to the approximate chronological age in years. This was measured by the age in years given by the respondents at the time of data collection. For the purpose of testing the stated empirical hypothesis, age was grouped into three categories namely: (21 - 40) years young farmers, (41 - 50) middle aged farmers, and 51 years and above old farmers. The mode for the sample size was used as the basis for the categorization. The mode for the sample was 40, this forms 13% of the sample and the highest percentage compared to the mean of the sample. The

lowest age of the respondents was 21. The range for the middle aged farmers category was narrowed so as to have more respondents falling within the young and old age categories.

(2) Household Size

It is felt that household size could have impact on sources of farm information because of the following reasons. In a household where there are a number of people especially farming adults, information could be exchanged. Also, there could be for example, a number of radios in a household to facilitate the diffusion of farm information.

Household size refers to the number of wives, children, relatives and dependents actually living with the respondents in his household at the time of collecting the data. For the purpose of testing the empirical hypothesis, household size was grouped into three categories namely: (2 - 8) people, small household size, (9 - 12) medium household size, 13 people and above, large household size. The mode for the sample was used as the basis for the categorization. The mode was 8, this forms 15% of the sample and the highest percentage compared with the mean.

(3) Level of Formal Education

This is defined as the number of years of formal or western education attained by the respondents.

Taking into account that this study was carried out in a rural setting and that the study is about rural farmers, primary seven education was regarded as the highest level of formal education.

The mean age for the respondents was 43 years, this meant that those of them who attended school must have done so when the junior and senior primary school system was in operation in Nigeria.

Therefore, for the purpose of testing the empirical hypothesis, level of formal education was grouped into three categories namely:

- (1) No formal education
- (2) Junior primary education
- (3) Senior primary education.

The basis for this categorization was that classes 1 - 4 were regarded as junior primary school, while classes 5 - 7 were senior primary school.

(4) Level of Adult Education

This refers to the number of months in which respondents attended adult literacy classes. The mean number of months was used as the basis for the categorization. The mean number of months of attendance was approximately six months. Thus, this variable was categorized into:

- (1) No adult education
- (2) (1 - 5) months medium level of adult education.
- (3) 7 months and above high level of adult education.

This categorization was done in order to test the empirical hypothesis.

(5) Size of Farm

This variable refers to the size of landholding measured in hectares. Very few farms in Nigeria have physically been measured. Therefore, it is almost impossible to find out from a farmer the exact size of his holding.

In this study, however, three methods of knowing farmers' size of holding were used:

- (1) There were farmers who made use of tractor hiring service of Gusau A.D.P and they were charged money per hectare.
- (2) There were farmers who made use of ox-plough and they were charged money per hectare.
- (3) There were farmers whose land had been measured by Gusau Agricultural Development Project. Those farmers that do not fall into any of these three categories and who do not know the size of their holding were treated as missing cases in the analysis.

The mean farm size was approximately 10 hectares. Half of the mean farm size was used as the basis for categorizing the farmers. Therefore (≤ 5) hectares was regarded as small size farmers, (5 - 10) hectares medium size farmers and 11 hectares and above large size farmers. This was done in order to test the stated empirical hypothesis.

(5) Organizational Membership

There are many farm related organizations to which a farmer in the study area could belong. Membership of such organizations could affect the sources of information that farmers used in their farming activities. The agricultural related organizations in the area were five. They were (1) young farmers club, (2) village agricultural cooperative society, (3) production work group or (aikin gayya), (4) village agricultural committee or council and (5) old farmers club. Since there are five agricultural organizations, the mean for five was regarded as two. This forms the basis for categorization of the farmers. The farmers were categorized into three namely: low organizational membership for those who did not belong to any of the five agricultural organizations, medium organizational

membership for those who belong to one or two organizations and high organizational membership for those who belong to 3 or more organizations. This categorization was done in order to test the stated empirical hypothesis.

(7) Adoption of Farm Practices

This was defined as the use of recommended farm practices as related to the growing of groundnuts. Improved groundnut variety was one of the crops introduced to the farmers in the study area. Nine recommended farm practices with regard to the growing of improved groundnut variety were presented to the farmers. Respondents were asked whether or not they used the recommended farm practices. Those who used were assigned one point and those who did not use were assigned zero. Those who did not adopt any of the farm practices were categorized as low adopters. Those who adopted (1 - 4) of the recommended practices were categorized as medium adopters while those who adopted five or more of the farm practices were categorized as high adopters. The basis for this categorization was that the mean for the nine recommended farm practices was regarded as four. This categorization was done in order to test the empirical hypothesis relating to level of adoption to sources of farm information used by the respondents.

(8) Level of Living

This was defined as respondents possession of durable consumer items which were regarded as a necessity or luxury. Some of the items listed were hurricane lamp, wooden bed, iron bed, cotton mattress, foam mattress, sewing machine, radio, wrist watch, bicycle, horse, and so on. Twenty-five items were listed on the questionnaire. Respondents were asked whether they possessed any of the listed items. The lowest number were those who possessed five items while the highest were those who possessed twenty-one items. This was used as the basis for the categorization of the respondents. The mean for twenty-one was regarded as 10 because there cannot be half durable consumer items. Therefore, the categorization was put at (5 - 10) low level of living, that is, those who possessed between 5 - 10 of the listed consumer items. (11 - 15) medium level of living and 16 and above high level of living. This was done to test the stated empirical hypothesis to determine the relationship between level of living and sources of farm information.

(9) Length of Farming Experience

This was defined as the number of years the respondents have been farming. This was measured

in terms of number of years. The responses were categorized into three using the mode as the basis for this. The mode was 20 years which was 12.7% and the highest compared to the mean. The lowest age of farming experience was 10 years. Therefore, the categories were (10 - 20) years low farming experience, (21 - 31) medium years of farming experience, 32 years and above high farming experience. This was done to test the stated empirical hypothesis and sources of farm information.

(10) Farm Income

This was defined as the amount of money in Naira derived from the sale of agricultural output of the respondents. This was categorized into three namely: low income, medium income and high income. The lowest income of the respondents was ₦30. The mode was used as the basis for the categorization. The mode was ₦1000 and 18% of the respondents fall within the mode. Therefore, the categorization was (₦30 - ₦1000) low income, (₦1001 - ₦1971) medium income, ₦1972 and above high income. This was done to test the stated empirical hypothesis and the sources of farm information.

2.5.2 Dependent Variables

The dependent variables for this study were the sources of farm information. The sources of farm information that were considered in this study were nine. They are radio, television, extension workers, pamphlets/newsletters, neighbours, friends and relatives, other farmers, company salesman and other sources. Those who used each of the sources were assigned one point while those who did not were assigned zero.

However, for the purpose of testing the stated hypothesis in the study, all these sources of information were categorized into four sources of farm information namely:

- (1) Informal sources of information: In this case, there is no institutional means of disseminating farm information except by word of mouth and personal contacts. Those who have no means or desire for contact with institutional sources of farm information could use this source. Examples of these source include neighbours, friends and relatives and other farmers. This source is oriented to local and personal experiences of the sources.

- (2) Mass media: These sources are well organized means of getting farm information to reach a large audience. Examples of these include radio, television and newsletter/pamphlets.
- (3) Government or agricultural agencies: These are repositories or store house of agricultural practices. The information from these sources are usually acceptable as legitimate and socially acceptable sources of farm information. Examples of these sources include agricultural extension worker and their related activities like agricultural demonstration plots.
- (4) Commercial sources of farm information: The content of this source is orientated to economic and special interests of the commercial sources. Examples of these sources include dealers, business firms and company salesmen, who try to push ideas to the farmers for the purpose of selling their products.

It was observed that farmers in the study area never used any of the commercial sources of information, therefore, no hypothesis was stated pertaining to commercial sources of information.

The hypotheses stated were in relation to informal, mass media and government or agricultural agencies sources of information.

For convenience sake, the most important source of farm information to the respondents in the above mentioned sources of information categories were chosen so that empirical hypothesis could be tested on these sources. For this purpose, therefore, neighbours were chosen in the informal sources of information category. Radio was chosen in the mass media sources of information category because it was the most important source of information to the farmers in that category. Extension workers were chosen in the government or agricultural agencies category of sources of information because it was the most important source in that category.

Based on what had been said above, and based on the findings of previous research that had been done in the area of sources of farm information and socio-economic characteristics of farmers as contained in the literature review, the following general and empirical hypotheses will be stated.

2.6 Hypotheses

General Hypotheses

The use of a particular source of farm information will be associated with the socio-economic characteristics of the farmers.

Empirical Hypothesis 1

Young farmers are more likely to use radio while old farmers are more likely to use extension workers.

Empirical Hypothesis 2

Farmers with large household size are more likely to use radio while those with small household size are more likely to use neighbours.

Empirical Hypothesis 3

Farmers without formal education are more likely to use neighbours while those with senior primary education are more likely to use radio.

Empirical Hypothesis 4

Farmers without adult education are more likely to use neighbours while those with high level of adult education are more likely to use extension workers.

Empirical Hypothesis 5

Farmers with small size farm are more likely to use neighbours while those with large farm size are more likely to use extension workers.

Empirical Hypothesis 6

Farmers with low organizational membership are more likely to use neighbours while those with high organizational membership are more likely to use extension workers.

Empirical Hypothesis 7

Farmers with high level of adoption are more likely to use extension workers while those with low level of adoption are more likely to use neighbours.

Empirical Hypothesis 8

Farmers with low level of living are more likely to use neighbours while those with high level of living are more likely to use radio.

Empirical Hypothesis 9

Farmers with low level of farming experience are more likely to use neighbours while those with high level of living are more likely to use extension workers.

Empirical Hypothesis 10

Farmers with low income from agriculture are more likely to use neighbours while those with high income from agriculture are more likely to use radio.

METHODS AND PROCEDURES

3.1 Introduction

This chapter focuses on the unit of analysis, area of study, method of data collection, sample and sampling technique and statistical analysis used in the study.

3.2 Unit of Analysis

The unit of analysis used in the study was the male household heads interviewed in the area of study. This is because they play dominant roles in the agricultural decisions in their households and so determine what sources of farm information they want to use in their farming activities.

3.3 Study Area

Three villages were selected for the study. These villages were Kotorkoshi, Kada and Tucheru respectively. They are all located in Gusau Local Government area of Sokoto State.

Gusau Local Government Area of Sokoto State was chosen for the study because it is one of the selected areas where the Institute for Agricultural Research of Ahmadu Bello University was carrying out its research activities.

The criteria used for selecting the villages was that they are all accessible by road. However, while both Kucheri and Kotorkoshi lie along Funtua-Sokoto major highway, Mada lies further into the interior from Funtua-Sokoto major highway and it is also accessible by an untarred road.

All the three villages lie within the jurisdiction of the Gusau Agricultural Development Project area. This implied that the farmers are already exposed to the idea of sources of farm information availability.

Majority of the people in the three villages are farmers. Some of them also engaged in secondary occupation such as tailoring, petty trading, butchers and many others.

The nature of farm operation taking place in the area of study is mainly crop rotation with intensive use of natural manure and fertilizer.

The crops grown in the area are mainly sorghum or guinea corn, millet, cotton, groundnuts and maize.

The mode age of the farmers that is, the most reported age of the farmers is 40 years. About 13.3% of the farmers are 40 years of age. On the other hand the mean age of the farmers is 43 years and about 2.7% of the farmers are of this age.

The mode household size of the respondents is 8 people per household while the mean household size is 11 people per household.

The mean farm size in the three villages is 9.779 hectares which is almost 10 hectares per farmer.

The mean years of farming experience of the farmers is 24 years while the mode years of farming experience is 20 years.

The mean income from agriculture is ₦1339.673 while the mode income from agriculture is ₦1000 in the three villages.

3.4 Method of Data Collection

The data for the study were collected through the help of interview schedule. The interview schedule was administered on the farmers with the help of trained Institute for Agricultural Research enumerators. These enumerators wrote down the responses to each question on the interview schedule.

3.5 Sources of Data

The data for this study is a secondary data taken from a study entitled "A Survey of Leadership and Rural Development in Gusau Local Government Area of Sokoto State." This was a study conducted by the Institute for

Agricultural Research, Ahmadu Bello University, Zaria. The interview schedule was administered on the farmers from July 1981 to November 1981. It was decided that the unanalysed part of the data be used in producing this study. This is because the data were of good quality.

3.6 Sampling Technique

The data on population size of each of the three villages were obtained from the Secretariat of the Gusau Local Government Area, while data on household heads were compiled from the tax register obtained from the District heads.

The sampling technique that was used in selecting the respondents for the study was a modified version of a simple random sample known as systematic selection. This version is a method of selecting units from a list or a proxy list. In this case, a proxy list of rows of houses found side by side along a street was used. Each fifth house was selected in each village and the male household head interviewed. In all one hundred and fifty (150) male household heads were interviewed for the purpose of this study in the three villages. Fifty respondents were interviewed in each of the three villages.

3.7 Statistical Analysis

To report the first objective of the study, which is, to determine the type of information sources used by the farmers, which included the most important source of information and why the source is the most important, descriptive statistics in terms of percentages was used in the analysis.

To report the second objective of the study, which is to determine whether or not there are significant relationships or association between some socio-economic characteristics of the farmers and their sources of farm information, the chi-square statistics was used.

The chi-square statistics was used to determine whether the variables stated in the hypothesis are independent or related. All the tables in the analysis contained 2 degrees of freedom. To make statistical decisions about the relationships, 0.05 level of significance was used, this was done for the sake of convenience.

This implied that, if the chi-square is $\chi^2_{0.05}$ 5.991, then the relationship or association stated in the hypothesis is significant. This means that if the chi-square is greater than or equal to 5.991, which is the chi-square for 2 degrees of freedom, then the

stated relationships or association in the hypothesis is significant at 0.05 level.

Some basic sample socio-economic characteristics of the farmers are given on Table 3.1. The table shows the mean, mode, standard deviation and variance of some of the socio-economic characteristics of the farmers.

Table 3.1. Some basic sample socio-economic characteristics of the farms.

Sample Socio-Economic Characteristics	Mode	Mean	Standard Deviation	Variance
1. Age	40.00	43.350	10.980	120.554
2. Household size	8.00	11.307	8.589	72.757
3. Level of adult education	-	5.507	8.503	72.300
4. Level of formal education	-	-	-	-
5. Size of farm	-	9.779	14.003	196.084
6. Organizational membership	-	1.487	1.445	2.090
7. Adoption of farm practices	9	6.827	2.087	4.354
8. Level of living	15	13.460	3.615	13.069
9. Length of farming experience	20	24.193	9.185	84.345

FINDINGS

4.1 Introduction

This chapter focuses on the findings to the stated objectives in chapter one. The two main objectives of the study were: (1) To determine the type of farm information sources used by the farmers in the study area. This included the sources the farmers considered most important and why the source was considered most important. (2) To determine whether there were any significant relationships between some socio-economic characteristics of the farmers and their sources of farm information.

4.2 Findings as Related to Objective One

In order to achieve the first objective, various questions were asked from the respondents. Nine sources of farm information were identified and posed in the form of questions to the respondents. The respondents were provided with the option to select as many sources of information as they had used out of the nine adequately provided in the questionnaire. Respondents were further provided to indicate which of the nine sources of information was most important and why.

The following are the results of the response patterns of the respondents shown on Table 4.1.

Table 4.1. Sources of farm information used by respondents.

Sources of farm information	No		Yes		Total	
	No.	%	No.	%	No.	%
Radio	44	29.3	106	70.7	150	100.0
Extension worker	59	39.3	91	60.7	150	100.0
Pamphlet/ newsletters	149	99.3	1	0.7	150	100.0
Friends and relatives	79	52.7	71	47.3	150	100.0
Neighbours	47	31.3	103	68.7	150	100.0
Other farmers	99	66.0	51	34.1	150	100.0
Others	143	95.3	7	4.7	150	100.0
None	149	99.3	1	0.7	150	100.0

Table 4.1 shows the number of respondents that have used each source of farm information. It was found that 70.7% of the respondents used radio as their source of farm information. This is followed by neighbours, 68.7% used this as their source of farm information. It is obvious from the table that radio was the most used source of farm information. This is followed by neighbours 68.7%, extension workers 60.7%, friends and relatives 47.3% and other farmers 34.1% respectively.

However, none of the respondents reported that they made use of company salesman and television as their source of farm information. The none use of television might be explained by the fact that there was no electricity supply to the three villages as at the time of the study. For this reason, the respondents could not be expected to make use of television as a source of farm information without electricity supply to operate the television sets.

A negligible 0.7% reported not using any source of farm information listed on the interview schedule. About 5% reported using other sources of farm information not included on the interview schedule. These sources included mobile ministry of information and what the farmers regarded or called their own local methods.

Table 4.2 shows the most important source of farm information according to the respondents. It was found that the respondents considered extension workers to be the most important source of farm information as 40% of them chose this source of farm information. The second most important source of information according to the respondents was radio as 22.0% considered this source to be the most important. The third most important source of information was neighbours as 21.3% considered this

source to be the most important. The fourth most important source of information was friends and relatives as 5.7% considered this source to be the most important. Four percent (4.0%) of the respondents reported that none of the given sources of farm information were important to them. While 2.7% reported that other sources of farm information not included on the interview schedule were the most important sources of information to them. These sources included mobile ministry of information and what the respondents regarded as their own local method of information. Less than 1% in fact, 0.7% of the respondents considered pamphlets/Newsletters as the most important source of farm information.

Table 4.2. The most important source of farm information.

Source of farm information	Number	%
Radio	33	22.0
Extension workers	50	40.0
Pamphlets/Newsletters	1	0.7
Neighbours	32	21.3
Friends and relatives	10	5.7
Other farmers	4	2.7
Others	4	2.7
None	6	4.0
Total	150	100.0

Table 4.3 shows that a negligible 0.7% of the respondents used no source of farm information listed on the questionnaire while 10.0% used only one source of information. Thirty percent (30%) of the respondents used about the same number of two and four sources of farm information. About 21% reported using three sources of farm information, while 7.3% used five sources of information and a negligible 0.7% used six sources of farm information.

Table 4.3. Number of sources of farm information used by respondents.

Number of sources used	Number	%
Those who used zero (No) source	1	0.7
Those who used 1 source	15	10.0
Those who used 2 sources	45	30.0
Those who used 3 sources	32	21.3
Those who used 4 sources	45	30.0
Those who used 5 sources	11	7.3
Those who used 6 sources	1	0.7
Total	150	100.0

4.3 Reasons for Choosing Various Sources of Farm Information as the Most Important

The following part of the analysis focused on the reasons given by respondents for choosing various

sources (see table 4.2) of farm information as the most important source. The reasons given for choosing a particular source are given in the following part of the analysis.

Table 4.4 showed that 30.3% mentioned that they had radio and that radio was very common and they listened to radio always. This was followed by 27.3% who mentioned that they believed what the radio said and that instructions and advice given over the radio were very detailed and simple to follow, so they gained from it. This was further followed by 18.2% who liked listening to Radio Nigeria Kaduna because of the educative agricultural programme which they broadcast. Other respondents, 15.2% listened to radio more than any other sources and they had never tried any other sources while 9.0% mentioned that radio was faster to communicate with farmers because they would merely sit in their houses and listen to the radio.

As shown on Table 4.2, 40.0% of the total respondents reported extension workers as the most important source of farm information. When they were asked why they had chosen extension workers as the most important source of information, the highest percentage among the respondents 33.3% mentioned that the extension workers explained in detail and

Table 4.4. Reasons for choosing radio as the most important source of farm information.

Reasons Given	Number	%
1. I have a radio and it is very common and I listened to it always	10	30.3
2. Radio Nigeria Kaduna usually broadcast an educative agricultural programme by AERLS Samaru which I like listening to	6	18.2
3. I believe what the radio says and the advice and instructions they give are very detailed and simple to follow and I gained from it.	9	27.3
4. I listened to radio more than any other sources and I have not tried any other sources	5	15.2
5. Radio is faster to communicate with the farmer(s), you will just sit in your house and hear everything.	3	9.0
Total	33	100.0

demonstrated for them to see since they had the technical know-how as shown on Table 4.5. This was followed by 30.0% who mentioned that the extension worker was their friend and that they were always together. This was followed by 20.0% who mentioned that the extension worker lived with them in the village and so they trusted them as givers of farm information. Other respondents 11.7% mentioned that the extension workers used to follow them to their

farm to teach them modern farming methods, while 5.0% mentioned that they felt free to go to the extension worker to seek advice on farming matters.

Table 4.5. Reasons for choosing extension workers as the most important source of farm information.

Reasons Given	Number	%
1. The extension worker is my friend and we are always together	18	30.0
2. The extension worker explain in detail and demonstrated for us to see, since they have the technical know-how.	20	33.3
3. I always feel free to go to him when I need advice on farming matters	3	5.0
4. He lives with us in the village and so we trusted him as a giver of farm information	12	20.0
5. He used to follow us to our farms to teach us how to practise modern farming.	7	11.7
Total	60	100.0

Earlier, it was shown from Table 4.2, that 21.3% of the total respondents chose neighbours as the most important source of farm information. When asked the reasons for choice as shown on Table 4.6, the majority 53.1% of the respondents mentioned that they acquired knowledge about farming from neighbours

whom they observed performing farming operations on their fields. About 21.9% of the respondents mentioned that they were very close to their neighbours, therefore, they could learn from them. Other respondents 15.6% found neighbours more reliable because they had no dealings with extension workers, while 9.4% mentioned that they learnt fertilizer application and how to get improved crop variety from neighbours.

Table 4.6. Reasons for choosing neighbours as the most important source of farm information.

Reasons Given	Number	%
1. We are always together since we are closed to each other, so I can learn from them.	7	21.9
2. I rely on neighbours because I don't deal with agricultural extension workers and they have never visited me	5	15.6
3. I learn by watching them openly and practically when they are working on their farms	17	53.1
4. I learnt fertilizer application and how to plant and get improved variety from neighbours	3	9.4
Total	32	100.0

From the earlier report on (Table 4.2) 2.7% of the total respondents mentioned other farmers as the most important source of farm information. Fifty

percent (50.0%) of these chose this source of information because they were always associated with each other and they could question other farmers without fear or shame. The other 50.0% mentioned that they did not deal with extension workers that was why they preferred to seek information from other farmers.

It was reported earlier on (Table 4.2) that 6.7% of the total respondents chose friends and relatives as the most important source of farm information. Eighty percent (80%) of these respondent chose this source of farm information because they used what they learnt from their parents when they were young and that they were most used to that. The remaining 20% mentioned that they were always together with their friends and relatives and so they could acquire farm information from them.

As was discovered from (Table 4.2), 4.0% of the total respondents did not consider any of the given sources of information contained on the questionnaire as the most important. Fifty percent (50.0%) of these mentioned that they were using their own local sources of information. This is followed by 16.7% who mentioned that all the given sources made no difference to them. Another 16.7% gave no reasons, yet another 16.7% mentioned that they were not interested.

From the 2.7% respondents that mentioned other sources of farm information not contained in the questionnaire (Table 4.2), 50.0% of these mentioned that they dealt directly with farm service centres, while the rest 50.0% mentioned that they used the mobile ministry of information because they could ask them questions.

The only respondent who chose pamphlets as the most important source of information did so because he could read and understand fully the information contained in them.

4.4 Findings as Related to the Second Objective of the Study

The second objective of the study is to determine whether or not there are significant associations or relationships between some socio-economic characteristics of the respondents and their sources of farm information. In order to achieve this objective, ten socio-economic variables were used, these variables are namely: age, household size, level of formal education, level of adult education, size of farm, organizational membership, adoption of farm practices, level of living, length of farming experience and farm income. Also, ten empirical hypotheses were stated to be confirmed or rejected

using the 0.05 level of significance for statistical decision about confirming or rejecting the stated empirical hypotheses.

Empirical Hypothesis 1

Young farmers are more likely to use radio while old farmers are more likely to use extension workers.

Table 4.7. Relationship between age and use of radio (mass media) as source of farm information.

Age of farmers	No	Yes	
(21-40) years young farmers	22(14.7)	49(32.7)	
(41-50) years middle aged farmers	13(8.7)	33(22.0)	
(51 and above) old farmers	9(6.0)	24(16.0)	
Total	44	106	150

$$X^2 = 0.18666.$$

There is evidence from Table 4.7 to show that there is a relationship between young age and use of radio (mass media). This is because over 32% who are the young farmers used radio while only 16% who are the old farmers used radio. However, the chi-square shows that the relationship is not significant at 0.05 level.

(21-40) years young farmers

Table 4.8. Relationship between age and use of extension worker (agricultural or government agency) as source of farm information.

Age of farmers	No	Yes	
(21-40) years young farmers	25(17.3)	46(30.9)	
(41-50) years middle age farmers	16(10.7)	30(20.1)	
(51 and above) old farmers	17(11.4)	15(10.1)	
Total	59	91	150

$$\chi^2 = 3.45804.$$

Table 4.8 shows no significant relationship at 0.05 level between old age and use of extension workers as source of farm information. It can be observed from the table that over 30% who are the young farmers used extension workers while only 10% who are the old farmers used extension workers.

Empirical Hypothesis 2

Farmers with large household size are more likely to use radio while those with small household size are more likely to use neighbours.

From Table 4.9, there is no significant relationship at 0.05 level between large household size and use of radio (mass media). The table

showed that 22.8% who are the farmers with large household used radio as source of information while 26.6% who are with small household size also used radio.

Table 4.9. Relationship between household size and use of radio (mass media) as source of farm information.

Household size	No	Yes	
(2-8) people small household size	25(16.8)	40(26.6)	
(9-12) people medium household size	8(5.4)	32(21.5)	
(13 and above) large household size	11(7.4)	34(22.8)	
Total	44	106	150

$$\chi^2 = 5.09962.$$

Table 4.10. Relationship between household size and use of neighbours (informal source) as source of farm information.

Household size	No	Yes	
(2-8) people small household size	19(12.8)	46(30.6)	
(9-12) people medium household size	14(9.4)	25(17.4)	
(13 and above) people large household size	14(9.4)	31(20.5)	
Total	47	103	150

$$\chi^2 = 0.32731.$$

Table 4.10 revealed that there is evidence to show that there is a relationship between small household size and use of neighbours (informal source) but the chi-square showed that the relationship is not significant at 0.05 level. As could be seen from the table, 30.6% who are the young farmers used neighbours while 20.8% who are the old farmers used the same source that is, neighbours.

Empirical Hypothesis 3

Farmers without formal education are more likely to use neighbours while those with senior primary education are more likely to use radio.

Table 4.11. Relationship between level of formal education and use of neighbours (informal source) as source of farm information.

Level of formal education	No	Yes	
No formal education	44(29.3)	101(69.7)	
(1-4) years junior primary	1(0.7)	2(1.3)	
(5-7) years senior primary	2(1.3)	- -	
Total	47	103	150

$$\chi^2 = 4.55441.$$

Table 4.12. Relationship between level of formal education and use of radio (mass media) as source of farm information.

Level of formal education	No	Yes	
No formal education	43(28.7)	102(70.3)	
(1-4) years junior primary	1(0.7)	2(1.3)	
(5-7) years senior primary	- -	2(1.3)	
Total	44	106	150

$$\chi^2 = 0.86059.$$

From Table 4.11, there is evidence to show that there is a relationship between farmers without formal education and use of neighbours (informal source). This is because over 69% who are farmers without formal education used neighbours (informal source) while none of those with senior primary education used neighbours as source of information. However, the chi-square showed that the relationship is not significant at 0.05 level.

Table 4.12 shows that there is no significant relationship between farmers with senior primary education and use of radio at 0.05 level. It can be seen that over 70% who are the farmers without formal education used radio while 1.3% who are those with senior primary education used radio (mass media).

Empirical Hypothesis 4

Farmers without adult education are more likely to use neighbours while those with high level of adult education are more likely to use extension workers.

Table 4.13. Relationship between level of adult education and use of neighbours (informal source) as source of farm information.

Level of adult education	No	Yes	
No adult education	29(18.0)	49(32.7)	
(1-5) months medium level	9(5.0)	18(12.0)	
(7 months or more) high level	11(7.3)	36(24.0)	
Total	59	91	150

$$\chi^2 = 2.04460.$$

Table 4.14. Relationship between level of adult education and use of extension workers as source of information.

Level of adult education	No	Yes	
No adult education	45(30.2)	31(20.8)	
(1-5) months medium level	7(4 .7)	20(13.4)	
(7 months or more) high level	7(4 .7)	40(26.8)	
Total	59	91	150

$$\chi^2 = 27.31894.$$

From Table 4.13, there is evidence to show that there is a relationship between farmers without adult education and use of neighbours. This is because over 32% who are the farmers without adult education used neighbours as source of farm information while 24% who are the farmers with high level of adult education used the same source. However, the chi-square showed that the relationship is not significant at 0.05 level.

Table 4.14 showed that there is a significant relationship at 0.05 level between farmers with high level of adult education and use of extension workers as source of farm information. It can be observed from the table that 26.8% who are the farmers with high level of adult education used extension workers while 20.8% who are the farmers without adult education also used extension workers.

Empirical Hypothesis 5

Farmers with small size farm are more likely to use neighbours while those with large farm size are more likely to use extension workers.

From Table 4.15 there is no significant relationship at 0.05 level between small size farm and use of neighbours (informal source) as source of farm

information. It can be observed from the table that 14.4% who are the small size farmers used neighbours while 35.5% who are the large size farmers used the same source of information.

Table 4.15. Relationship between farm size and use of neighbours (informal source) as source of farm information.

Size of farm	No	Yes	
≤ 5 hectares small size	12(11.5)	22(21.2)	
(6 - 10) hectares medium size	8(7.7)	19(18.3)	
(11 or more) hectares large size	13(12.5)	20(23.3)	
Total*	33	71	104

$$\chi^2 = 0.29337.$$

*Number of missing observations = 46.

Table 4.16. Relationship between farm size and use of extension workers as source of farm information.

Size of farm	No	Yes	
≤ 5 hectares small size	19(18.3)	15(14.4)	
(6-10) hectares medium size	6(5.8)	21(20.2)	
(11 or more) hectares large size	5(4.8)	38(35.5)	
Total	30	74	104

$$\chi^2 = 18.896643.$$

*Number of missing observation = 46.

Table 4.16 showed that there is a significant relationship at 0.05 level between farmers with large farm size and use of extension workers as source of farm information. The table shows that 28.8% who are the large farm size farmers used extension workers while 21.2% who are the small size farmers used the same source of information.

Empirical Hypothesis 6

Farmers with low organizational membership are more likely to use neighbours while those with high organizational membership are more likely to use extension workers.

Table 4.17. Relationship between organizational membership and use of neighbours as source of farm information.

Organizational membership	No	Yes	
Belongs to no organization low	17(11.3)	31(20.7)	
(1-2) organizations medium	26(17.3)	40(26.7)	
(3 or more) organizations high	4(2.7)	32(21.3)	
Total	47	103	150

$$\chi^2 = 9.20746.$$

Table 4.18. Relationship between organizational membership and use of extension workers as source of farm information.

Organizational membership	No	Yes	
Belongs to no organization low	25(20.5)	12(8.1)	
(1-2) organizations medium	32(14.8)	44(29.5)	
(3 or more) organizations high	2(1.3)	35(23.5)	
Total	59	91	150
	$\chi^2 = 45.62924.$		

From Table 4.17, there is a significant relationship between low organizational membership and use of neighbours at 0.05 level. The table shows that 20.7% who are farmers with low organizational membership used neighbours as source of farm information while 21.3% who are farmers with high organizational membership used the same source that is neighbours.

Table 4.18 shows that there is a significant relationship at 0.05 level between high organizational membership and use of extension workers as source of information. The table reveals that 23.5% who are the farmers with high organizational membership used extension workers while 8.1% who are those with low organizational membership used the same source.

Empirical Hypothesis 7

Farmers with high level of adoption are more likely to use extension workers while those with low level of adoption are more likely to use neighbours.

Table 4.19. Relationship between level of farm adoption and use of extension workers as source of farm information.

Level of farm adoption	No	Yes	
Those that did not adopt low	12(8.1)	-	
(1-4) adopted practices medium	9(6.0)	2(1.3)	
(5 or more) adopted practices high	38(25.5)	89(59.7)	
Total	59	91	150

$$\chi^2 = 30.25569.$$

Table 4.20. Relationship between level of adoption and use of neighbours (informal source) as source of farm information.

Level of farm adoption	No	Yes	
Those that did not adopt low	7(4.7)	5(3.3)	
(1-4) adopted practices medium	5(3.3)	5(3.3)	
(5 or more) adopted practices high	35(23.3)	93(62.0)	
Total	47	103	150

$$\chi^2 = 6.63231.$$

From Table 4.19, there is a significant relationship at 0.05 level between high level of farm practices adoption and use of extension workers. It can be observed from the table that 59.7% who are the farmers with high level of farm practices adoption used extension workers as source of information while none of the low adopters used extension workers.

Table 4.20 revealed that there is a significant relationship between low level of farm practices adoption and use of neighbours as source of information. The table revealed that 52% who are the farmers with high level of farm practices adoption used neighbours while 3.3% who are the farmers with low level of adoption also used neighbours.

Empirical Hypothesis 8

Farmers with low level of living are more likely to use neighbours while those with high level of living are more likely to use radio.

From Table 4.21, there is no significant relationship at 0.05 level between farmers with low level of living and use of neighbours. It can be observed from the table that 15.3% who are the farmers with low level of living used neighbours while 19.3%

who are the farmers with high level of living used the same source of farm information.

Table 4.21. Relationship between level of living and use of neighbours (informal source) as source of farm information.

Level of living	No	Yes	
(5-10) of durable consumer items (low)	11(7.3)	23(15.3)	
(11-15) of durable consumer items (medium)	20(13.3)	51(34.0)	
(16 or more) of durable consumer items (high)	16(10.7)	29(19.3)	
Total	47	103	150
	$\chi^2 = 0.71971.$		

Table 4.22. Relationship between level of living and use of radio (mass media) as source of farm information.

Level of living	No	Yes	
(5-10) of durable consumer items (low)	20(13.3)	14(9.3)	
(11-15) of durable consumer items (medium)	18(12.0)	53(35.3)	
(16 or more) of durable consumer items (high)	6(4.0)	39(26.0)	
Total	44	106	150
	$\chi^2 = 20.36491.$		

Table 4.22 shows that there is a significant relationship at 0.05 level between farmers with high

level of living and use of radio as source of information. It can be seen from the table that 26% who are the farmers with high level of living used radio while 93% who are those with low level of living used the same source that is radio as source of farm information.

Empirical Hypothesis 9

Farmers with low level of farming experience are more likely to use neighbours while those with high level of farming experience are more likely to use extension workers.

Table 4.23. Relationship between length of farming experience and use of neighbours (informal source) as source of farm information.

Length of farming experience	No	Yes	
(10-20) years low	11(7.3)	62(41.3)	
(21-31) years medium	25(16.7)	23(15.3)	
(32 or more) years high	11(7.3)	18(12.0)	
Total	47	103	150

$$\chi^2 = 19.16806.$$

From Table 4.23, there is a significant relationship at 0.05 level between farmers with low level of farming experience and use of neighbours

(informal source) as source of farm information. It can be seen from the table that 41.3% who are the farmers with low level of farming experience used neighbours while 12% who are the farmers with high level of farming experience used the same source, that is, neighbours as source of farm information.

Table 4.24. Relationship between length of farming experience and use of extension workers as source of farm information.

Length of farming experience	No	Yes	
(10-20) years low	26(17.4)	47(31.5)	
(21-31) years medium	18(12.1)	30(20.1)	
(32 and above) years high	15(10.0)	14(9.4)	
Total	59	91	150

$$\chi^2 = 1.82173.$$

Table 4.24 shows that there is no significant relationship between farmers with high level of farming experience and use of extension workers as source of farm information. It can be seen from the table that 31.5% who are the farmers with low farming experience used extension workers while 9.4% who are the farmers with high level of farming experience used the same source of information.

Empirical Hypothesis 10

Farmers with low income from agriculture are more likely to use neighbours while those with high income from agriculture are more likely to use radio.

Table 4.25. Relationship between farm income and use of neighbours (informal source) as source of farm information.

Farm income	No	Yes	
(#30 - #1000) low	30(20.0)	70(46.7)	
(#1001 - #1971) medium	5(3.3)	5(3.3)	
(#1972 and above) high	12(8.0)	22(13.7)	
Total	47	103	150

$$\chi^2 = 1.73513.$$

Table 4.26. Relationship between farm income and use of radio (mass media) as source of farm information.

Farm income	No	Yes	
(#30 - #1000) low	38(25.3)	62(41.3)	
(#1001 - #1971) medium	1(0.7)	9(6.0)	
(#1972 and above) high	5(3.3)	35(23.3)	
Total	44	106	150

$$\chi^2 = 10.89452.$$

From Table 4.25, there is evidence to show that there is a relationship between farmers with low income from agriculture and use of neighbours as source of farm information. However, the chi-square shows that the relationship is not significant at 0.05 level. It can be seen from the table that 45.7% who are farmers with low income from agriculture used neighbours while 13.7% who are farmers with high income from agriculture used the same source that is neighbours.

Table 4.26 shows that there is a significant relationship between farmers with high income from agriculture and use of radio (mass media) as source of farm information. However while 41.3% of farmers with low income from agriculture used radio only 23.3% who are farmers with high income from agriculture used the same source of farm information that is, radio.

DISCUSSIONS OF FINDINGS AND THEIR IMPLICATIONS,
CONCLUSIONS AND RECOMMENDATIONS

The focus of this chapter is on the discussions of findings reported in chapter 4 and their implications. The chapter also focuses on the conclusion derivable from the findings in the previous chapter and recommendations.

5.1 Discussions of Objective One and the
Implications

In discussing objective one of the study, it was found that radio was the most utilized source of farm information. About 70.7% of the farmers used this source of information. This source was followed by neighbours and 55.7% of the farmers used this source of farm information. The third most used source of information was the extension workers whose services were used by 50.7% of the farmers. The implications of these findings are that the importance of radio as source of farm information has been brought to light. The importance of radio as a source of farm information has been vastly exhausted by Ynsidu (1973) since a large percentage of farmers used radio, government should make attempt at making radio available to rural farmers. This will greatly sustain the innovative behaviours of rural farmers and this would be an indirect way of developing agriculture in general.

Neighbours, being the second most used source of farm information in the study area should be encouraged. Neighbours could be organised to come together to share common experiences on agricultural matters. This coming together could be done once a week, once in a fortnight or once a month. This finding contradicts the often held opinions of people like (Bailey, 1955) that rural people do not share useful ideas with their neighbours.

The third most used source of farm information was the use of extension workers. One should expect that this source could be the most used source of information. However, attempt should be made to make this particular source the most used source of information. This is because this particular source would be able to sustain or enhance the innovative behaviour in the rural farmers.

One noticeable thing was that television was never used as a source of farm information in the study area. This could be due to the fact that there was no electricity in the area of study as at the time of this study. Despite this, the importance which television could play in shaping and affecting the innovative behaviour of farmers and agricultural development cannot be neglected.

Also, company salesman was never used as a source of farm information. This meant that private companies

had not made their impact felt on rural agricultural activities. Companies or investors had not invested in areas where they could be of help to the government in the area of dissemination of farm information to the rural communities. It seemed that everything about agricultural information was left to government and the farmers. Companies and investors should be encouraged or forced to go into the areas of dissemination of farm information to rural farmers.

The impact of pamphlets/newsletters as a source of farm information was found to be negligible. Less than one percent of the farmers made use of this source. This could be attributed to the low literacy and educational level of the farmers. The importance of education in shaping a favourable innovative behaviour of farmers cannot be neglected. This is the more reason why educated people should be encouraged to take to farming so that agriculture would not be left only for the rural uneducated masses.

It was also found that ~~the~~ made use of one type of source of information or the other. Less than one percent of the farmers did not make use of any source of farm information indicated on the questionnaire. This is very important because it showed that farmers were aware that getting farm information was desirable.

Forty percent (40) of the farmers considered extension workers to be the most important source of farm information. This showed the importance which farmers in rural areas placed on extension workers. This was followed by radio as 22% of the farmers regarded radio as the most important source of farm information. This was followed by neighbours. Television and company salesman were not considered most important by any farmer.

About 30.0% of the farmers used two sources of farm information, so also, another 30.0% used four sources of farm information. About 21.3% used three sources of farm information. From this one could conclude that majority of the farmers (81.3%) used between two to four sources of farm information in their farming enterprise. This meant that the farmers used multi-sources of information in their farming activities.

The farmers who chose radio as the most important source of farm information did so for several reasons. About 30.3% chose radio because they had radio and that it was almost everywhere that is, very common and that they listened to it always. This implied that the availability of radio in rural area could increase the number of people listening to radio in the rural area. And this is important for the

innovative behaviour of farmers and for agricultural development in general. About 27.3% chose radio because they believed what the radio said and that the advice and instructions radio gave were detailed and simple to follow and they gained from it. This implied that for farm information over the radio to be beneficial to rural farmers, the information must be simple and credible to the farmers. The farm information must also be from a credible organization. This is because 18.2% chose radio because Radio Nigeria Kaduna produced an educative agricultural programme by ABRLS Samaru which the farmers liked listening to. Agricultural Extension Research and Liaison Services had been known all over the northern States of Nigeria to be a credible source of farm information.

The farmers who chose extension workers as the most important source of farm information did so for several reasons. About 33.3% chose this source as the most important because the extension workers explained in detail and in a more practical way for the farmers to see and the farmers trusted them to have the technical know-how. The implication of this is that extension workers must be well equipped with extension teaching methods in order to be able to convince and win the confidence of the farmers on farm practices. Also 30.0% chose this source because

the extension workers were their friends and that they were always together. The implication of this is that extension workers must be friendly with the rural farmers in order to gain their confidence. They should never show any superiority complex tendencies. The extension worker should live with the farmers in the village so that they could trust the extension worker as a giver of farm information, this should be so because 20.0% of the farmers gave this reason for choosing extension workers as the most important source of farm information.

It was found that 53.1% of those who chose neighbours as the most important source of farm information did so because they learnt by watching their neighbours openly and practically when the neighbours were working on their farms. The implication of this is that there should be no inhibition on the part of farmers to learn from each other. Farmers should feel free to learn from each other. Farmers could form the habit of meeting together at fixed intervals to exchange ideas and experiences relating to agricultural activities, since it has been found that farmers in this study do not hoard information, that is, they are not selfish.

It was also found that there were some conservative farmers who did not consider any of the sources of farm information on the questionnaire important. Some of the reasons given for this were that they were old and had no formal education, our data again showed no significant relationship between level of formal education and use of neighbours as source of farm information. No significant relationship was

also found between level of formal education and the use of radio as a source of farm information. Again our third empirical hypothesis has not been supported by our data.

No significant relationship was found between level of adult education and use of neighbours as source of farm information. However, significant relationship was found between level of adult education and the use of extension workers as source of farm information. Thus part of empirical hypothesis four is supported by our data.

Our data revealed no significant relationship between size of farm and the use of neighbours as source of farm information. But there was a significant relationship between farm size and the use of extension workers as source of farm information. Again part of our fifth hypothesis has been supported by our data.

Significant relationship was found between organizational membership and use of neighbours and extension workers as sources of farm information. Those farmers with low organizational membership use neighbours as sources of farm information, while those with high organizational membership use extension workers as source of farm information. The sixth hypothesis is thus supported by our data.

Our data revealed a significant relationship between farm practices adoption and the use of extension workers as source of farm information and also use of neighbours as source of farm information. Those farmers with high level of farm practices adoption tend to use extension workers as their source of farm information, while those with low level of farm practices adoption tend to use neighbours as their source of farm information.

A significant relationship was found between low level of farming experience and use of neighbours as source of farm information. However, no significant relationship was found between high level of farming experience and the use of extension workers as source of farm information. Again only partial support was found for hypothesis nine.

Income from agriculture was found to be significantly related to the use of neighbours and radio as sources of farm information. Those farmers with low income from agriculture tend to use neighbours as source of farm information, while those with high income from agriculture tend to use the radio as source of farm information. Our data has thus given support to the tenth empirical hypothesis.

5.3 Conclusions

From the findings and discussions of findings it was found that about seven sources of farm information were used by the farmers in the study area. Among these sources of farm information, radio was the most used source, this was followed by neighbours and the third most used source of farm information was extension workers. While the least used source of farm information was pamphlets/newsletters.

It was also found that extension workers were considered the most important source of farm information by the farmers. The reasons given for claiming this source to be the most important were greatly varied. Radio was considered the second most important source of farm information, while neighbours were considered the third most important source of farm information.

It was found that majority of the farmers (81.3%) used between two to four sources of farm information in their farming operations.

There was a significant relationship between farmers with high level of adult education and the use of extension workers.

There was a significant relationship between large farm size and the use of extension workers as source of farm information.

There was a significant relationship between low organizational membership and the use of neighbours as source of farm information. It was also found that there was a significant relationship between high organizational membership and use of extension workers as source of farm information.

There was a significant relationship between high level of farm practices adoption and the use of extension workers and also a significant relationship between low level of adoption and the use of neighbours as source of farm information.

5.4 Recommendations

Based on the findings of this study the following recommendations have been suggested:

- (1) Radio was found to be the most used source of farm information, because of this, radio should be made easily available or accessible to rural farmers.
- (2) Neighbours were found to be the second most used source of farm information. This has contradicted some earlier held notion that rural people tended to hoard useful information. That is, rural people do not share useful information with their neighbours. It is therefore recommended that neighbours in a farming

environment be mobilized to share and encourage each other about new farm practices.

- (3) Extension workers was the third most used source of farm information. This shows that extension activities of the extension workers have not reached a large number of the farmers. It is therefore recommended that more extension workers be employed so that they could reach a large number of the farmers.
- (4) It was found that less than 1% of the farmers used pamphlets/newsletters. This shows that the educational level of the farmers is so low that this source was not used. It is therefore recommended that both adult and formal education be geared up so as to get rural farmers more educated so that they could be able to make use of pamphlets/newsletters as a source of farm information.
- (5) Electricity should be supplied to rural areas so that those farmers who could afford television sets could have electricity supply to operate them. This would enable them listen to agricultural programmes that are produced over the television.
- (6) It was also found that some socio-economic variables were related at a significant level

to the use of certain sources of farm information. Agricultural information communicators should be able to design appropriate farm information sources for different categories of farmers based on the findings of this study.

5.5 Recommendation for Further Research

This study could further be expanded upon by other researchers. This study has established the existence of significant relationships between some socio-economic characteristics of the farmers and the use of certain sources of farm information. Other researchers could want to determine which sources of information farmers perceived or considered to be the most readily available, the most knowledgeable, the most trustworthy and the most useful. The researchers could want to determine the relationship between farmers selected socio-economic characteristics and the sources of information farmers perceived or considered the most readily available, the most knowledgeable, the most trustworthy and the most useful.

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