RELATIONSHIPS OF SELECTED CHARACTERISTICS OF MAIZE GROWERS WITH THEIR ADOPTION OF IMPROVED FARM - TECHNOLOGIES:

CASE OF SMALL SCALE FARMERS IN SELECTED VILLAGES OF KADUNA STATE

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D E D I C A T I O N

DEDICATED TO MY DAUGHTER,

'KEMI OMOKORE

A B S T R A C T

The transfer of Improved Farm Technologies to our small scale farmers is vital towards increasing our agricultural production.

With the conviction that adoption of Improved Farm Technologies is the panacea to low agricultural productivity in Nigeria, the Federal Government have embarked on Nation-wide projects like National accelerated food production projects, Agricultural development projects, Land-clearing scheme, Seed multiplication projects Green revolution etc. They all try to transform the traditional farming methods by transfering new farming techniques and innovations devloped by research institutes to farmers through Agricultural Extension.

Available evidence indicates that adoption rates are inadequate. Even where some attempts have been made towards adoption, it has been observed that farmers use the elements of the new technologies in ways that deviate from the recommendation of research stations. With a few exceptions farmers have not been able to achieve the high potentials of the Improved Technologies. It is therefore desirable to ascertain the characteristics of adopters or factors associated with adoption of improved practices.

Many studies carried out in Nigeria or other parts of the world have shown that farmers who adopt recommended practices have defined characteristics or notable attributes viz: age, Income educational levels etc.

This study therefore tries to examine relationships of selected characteristics of maize growers with their adoption of Improved farm technologies. ASample of 124 farmers were randomly selected from four villages in Kaduna State of Nigeria and six recommended practices in relation t' maize production were investigated.

On the basis of inter-correlation of dependent and independent variables; age, income, educationnal level, farming experience status were found to be positively correlated and significantly related to adoption.

Further analysis showed that membership of formal social organization, farm size and extension agent contacts were not significantly related to adoption of improved technologies. This meant extension agents do not constitute important source of information on Improved practices which culminated in non active participation f farmers in extension union.

The non effectiveness of extension agents could be attributed to their low number or ratio to their clients. The study therefore recommended more recruitment and training of extension agents to reduce the Agent/farmers ratio to a manageble size.

Mass functional adult-literacy and formation of formal social-organisations such as farmers co-operative or extension union were also

recommended to help duplicate extension agents efforts in their attempts in getting farmers into aframe of mind and attitude conducive to acceptance of Agricultural Innovations.

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CERTIFICATION

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CHAPTER ONE

INTRODUCTION

One of the formidable problems facing developing nations of the world today is the urgent need for transforming traditional Agriculture for providing adequate food requirements for the rapidly growing population.

InfactMalthusian prophecy of doom has become a relevant issue of our time.

The guidelines to the fourth National Development Plan affirmed that with the current overall Food demand of 3.3 percent per annum and production rate of one percent about 2.6 million tons of grain are being imported annually (FRN 1981). Assuming the demand and production rates remain the same over the four years. (1981 - 1985), a deficit of 5.5 million tons of grain would be expected by 1985.

Agriculture plays a vital role in economic transformation of developing countries. It is the mainstay of Nigeria's economy. Apart from the basic role of providing food and fibre, it provides employment and foreign earnings etc. It is not surprising therefore, that many developing countries (Nigeria inclusive) attach great importance to development of the "traditional sector" if not giving it the highest priority, to enable them increase food

production and other raw materials to meet the needs of growing population and rising industrial production.

In bid to achieve this vital goal, nation-wide projects like National accelerated food production project, Operation feed the Nation, Land-clearing Schemes, Seed-multiplication projects, Agricultural Development projects and most recently, Green-revolution etc. have been established. They all try to transform the tranditional farming methods. New farming techniques and innovation are transferred from these various corporations to farmers through Agricultural Extension.

Agricutural extension is an informal systematic education of rural people through democratic methods (Voluntary - out of School) to enable them identify their needs, using improved technnology, raise their standard of living through their own efforts.

In Northern Nigeria, specifically in Kaduna State the extension service of Ministry of Agriculture and National Resources including various change agencies and/or research institutes i.e. Institute for Agricultural Research, Agricultural Extension Research and Liaison Services, College of Agriculture, Samaru, all of Ahmadu Bello University have in one way or another introduced improved practices to a number of local communities. While some of the farmers are apathetic and relunctant in the

acceptance of these new techniques, others have accepted and adopted some recommended practices where they found it "suitable" and 'convinient" to do so.

It is still strongly believed that adoption of improved farm technologies is the panacea to low agricultural productivity in Nigeria. The transfer of improved technologies to our small scale farmers is vital towards increasing our agricultural production. It is not that farmers are resistant to change, they are simply risks averse. It is rational to avert risks and uncertainties as much as possible in any production activities whether Agricultural or Industrial. An appropriate technologies which is effectively communicated can not be rejected by the farmers and will stand the test of time.

There are a number of factors to be considered for effective transfer and adoption of improved technologies. Some are reflected in the characteristics of the adopters (farmers) and some in the nature or characteristics of the technologies being recommended.

1.2 STATEMENT OF THE PROBLEM

Research institutes and various Agricultural corporations set up all over the country have developed some improved technologies and programmes to promote their adoption through Agricultural Extension service.

Available evidence indicates that adoption rates are inadequate. Even where there has been some attempt at adoption, it has been observed that farmers use the elements of the new technologies in ways that deviate from the recommendation of research stations. With a few exceptions. farmers have not been able to achieve the high potentials of the improved technologies.

1.3 OBJECTIVES OF STUDY

The broad objective of this study is to assess some factors associated with adoption of improved farm technologies among small-scale farmers in Kaduna State.

Specifically, an attempt will be made to:

(i) Identify some selected personal, economic, social and phychological characteristics of the maize growers.

(ii) To determine the extent of adoption of improved farm technologies by the maize growers.

(iii) To explore the relationships and selected characteristics of maize growers with their adoption of the improved farm technologies.

(iv) Find out reasons for non-adoption by farmers if applicable.

v. On the basis of (1-iv) draw implication for planning and execution of future similar extension programme on adoption of improved recommended practices.

1.4 HYPOTHESES OF THE STUDY

(a) There is no significant relationship between adoption of improved technologies and farmers age.

(b) There is no significant relationship between adoption of improved technologies and size of form.

(c) There is no significant relationship between adoption and level of income.

(d) There is no significant relationship between educational level and adoption of improved farm technologies.

(e) There is no significant relationship between farming experience (years of farming) and adoption of improved technologies.

(f) There is no relationship between adoption of improved technologies and contact with extension agent.

(g) There is no significant relationship between adoption of improved technologies and membership of formal social-organization.

(h) There is no significant relationship between tenure status of farmers and their adoption of improved farm technologies.

1.5 JUSTIFICATION FOR THE STUDY

The need for study derives from the worsening food problem in Nigeria. The present use of traditional technology is said to be one of the major hinderances to increase production in Agriculture.

It has been argued that the fact that most developed countries have substantially higher yield of grains than the developing countries, is not due to better quality of their lands or more satisfactory climate. The higher yield can be explained by availability of modern inputs such as fertilizers, improved seed varieties, herbicides and more adequate water control where irrigation is used.

Nigerian farmers are capable of meeting the food needs of the country only if necessary infrastructures are provided. The gap between rich and poor countries can largely be attributed to differences in technology. This leads to the conviction that food problem in Nigeria is capable of being solved through the adoption of improved practices. As a result, Nigeria has embarked on a lot of agricultural programmes which are designed with specific objectives in view. Generally, these views include bringing about changes in either skill, attitudes and knowledge and consequently to increase yield and food production through the adoption of improved technologies.

The (Improved technologies) are worthless unless their objectives are achieved. The problems lies in the appropriateness and readiness or willingness of the farmers to adopt. This is why the study of this nature is very essential to co-study the attributes or characteristics of the potential adopters and improved technologies being advocated. Relationship between both observed, to enable us provide useful information to programme planners and Extension workers for necessary adjustments if need be.

The study is further necessary to enable us identify characteristics associated with adoption or rejection of recommended practices. It will be useful to policy makers or serve as guidance for making vital decisions on such programmes.

1.6. LIMITATION OF DATA COLLECTION

Time constitutes a great constraint to the type of field observation proposed. It was very difficult in getting the farmers to grant audience. Since the researcher understands but could not speak Hausa fluently, two Hausa indegenes were employed as enumerators (interviewers) in administering the questionnaire. They were graduates of College of Agriculture, Samaru. Zaria but received training for only one day on how to conduct the survey, due to shortage of time as mentioned above.

Getting specific and accurate data on demographic characteristics was difficult since most of the farmers were illitrates or did not have formal education and the demographic information was very germane to the study e.g. farmers income, size of farms, number of dependants

a comparative view of the Extension agents who know most of the [illegible] who [illegible] farmers problem would have provided a balance view. But the study did not include the extension agents due to time factor.

Sample size could not be increased to a greater extent due to additional cost to be incurred. e.g. The enumerators charged one naira (₦) per respondent interviewed. This has served as a constraint to obtain a large sample size that will provide greater channces of representativeness and generalisation.

1.7. DEFINITION OF TERMS USED

Improved Technology - is used to encompass the technological package for use and adopted by research institutes. Viz, Improved variety of seeds, fertilizer, seed-dressing and insecticides, farm-equipment like, ox-plough, tractors, sprayers ridge-spacing and seed-rate.

Adoption - Acceptance and reported use of recommended farm practices as best cause of action available.

Tenure-Status - This parameter deals with manner by which land is obtained and retained for farmingwhether inherited or bought.

Gado - Is land acquired for farming through inheritance.

"Aro" - Is land acquired for farming through rentage to be payed for in cash or kind.

Relative advantage - is the degree to which innovation

is perceived as better than the idea it supersedes.

Complexity - In the degree to which the innovation
is perceived as relatively difficult to understand and used.

Compatibility - Is the degree to which the improved technology or
innovation is perceived as relevant to the existing values,
past experiences needs to the receiver.

Expensiveness - Is the degree to which the new practice is considered
more costlier than the practice it supersedes.

Level of Literacy - The ability to read agricultural instructions
written in English, arabic or Hausa text.

Socio-Economic Status - is defined as the monetary
value of the list of possession of durable consumer goods
e.g. Radio, Bed, bicycle etc.

Leadership Role - Position held or occupied at village
level either as village head, scribe etc.

Membership of formal Organisation - Membership of farmers
co-operative society or farmers extension union.

Cosmopoliteness - Is defined as the frequency of visits to or from
cities or the exposure to information on innovation through
Radio or mass-media generally.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter deals with relevant literature review on the adoption of improved practices and is divided into the following sections.

(a) Socio-economic factors

(b) Socio-cultural factors

(c) Socio-phychological factors

(d) Characteristics of innovations' factors

(e) Others.

2.1 INTRODUCTION

There has been limited studies of farmers adoption behavior in Nigeria. Literature shows that adoption behavior is unique, specific to particular innovation, and communication plays an important part in adoption process. However, before a farmer adopts a practice, he must be aware of it and this is done through "communication" which serves as the conduit pipe. (Bogunjoko 1983, Leagans 1979, Rogers and Shoemaker 1971).

Researcher who conducted similar studies on relationships of farmers characteristics to the adoption of recommended practices in

other parts of the world revealed that these farmers had well defined characteristics. It was further shown that traditional socio-economic factors such as level of formal education, age, farm-size and age of farm, income, family size, frequency of agents visit, characteristics of innovations themselves among others combine to influence adoption of agricultural innovations.

2.2 SOCIO-ECONOMIC FACTORS ASSOCIATED WITH ADOPTION OF IMPROVED PRACTICES

In Southern parts of Nigeria, studies have been carried out that demonstrated relationships between farmers' characteristics and adoption behavior. Basu (1969) made a study of the characteris tics of farmers in relation to their readiness to adopt new farm practices in four villages in Western Nigeria. He reported that farming as a full-time occupation., size of farm operated, ownership of land, contact with extension agents, observation of results obtainedfrom friends and relatives who had adopted the new innovation, acceptance of formal group norms and influence of group pressure or socio-cultural environment were important factors associated with adoption of farm practices.

Clark and Akinbode (1968) found age, level of education, farm size and social participation in voluntary organisations, use of mass-media, frequency of agents' contacts, year of farming experience and value of farm products to be positively and significantly associated with adoption of practices among farmers they studied in Western Nigeria.

According to Alao (1971) family size, exposure to mass-media, cosmopoliteness, farm size, level of awareness, participation or involvement in voluntary organisation were significantly related to adoption among Nigerian farmers.

In his own hid, Kid (1968) found that contact with extension agents was necessary in adopption of innovation in Western Nigeria.

Patel and Anthonio (1971) discovered among the tobacco farmers they studied in Western Nigeria that contact with extension agents, size of family, and size of holding were related to the adoption of improved practice of tobacco.

Williams (1971) in his study on the relationships of farmers characteristics to the source of information on improved farm practices in Westerrn Nigeria affirmed that extension agents/Radio were the sources most frequently used by farmers to obtained information on improved practices.

Van den Ban and Rolling (1975) hypothesized that farmers who had changed agent contact, had a higher socio-economic level, more educated, more cosmopolitant contacts were earlier adoptors of new agricultural ideas. Their description results revealed that farmers with extension contact seemed more likely to have external contact, higher income, larger farms, more modern management, more education and more formal leadership positions than farmers with no extension contact.

In Eastern State of Nigeria Osuji (1983) investigated some infrastructural facilities impeding adoption of new packages and reported that educational level, financial positions of the farmers, frustration on the parts of extension agents were the major factors responsible for non adoption.

Another research in Eastern State of Nigeria by Otibuaku and ' ' (1974)re-affirming, Osuji's findings reported that high degree of awareness and law-rate of recommended practices among farmers was the function of farmers disposition in extension education or Incompetent extension staff.

Not much systematic studies on factors associated with the adoption of recommended practises and processes have been carried out in Northern Nigeria.

However, Voh (1982) in his work on factors associated with adoption of recommended practices among Giwa farmers of Kaduna State found leves of literacy and education, contact with extension and urban centres, socio-economic status, empathy and leadership role in agricultural matters to be significantly related to adoption of recommended practices.

Bose (1961) in India examined the characteristics of farmers adopting improved farm practices in the village and discovered that literacy, higher participation in community activities, farm ownership, membership of higher castes are all related to adoption.

In rural Bangladesh, Ziaul and Mahboob (1971) studied the relationships of selected characteristics of transplanted Aman rice growers with their adoption of fertilizer. They reported that age, and fatalism had strong negative relationship with adoption while

tenure and functional literary were not significant, whereas cosmopoliteness, organisational participation, commercialisation, extension exposure were all significant. Filegel (195') made multiple correlation of factors associated with adoption of farm practices and reported that correlation existed between familism, contacts of information on farm matters, levels of living while size of operation and authority on farm matters were not significantly related.

March and Coleman (1953) investigated the relationship of farmers characteristics to the adoption of recommended farm practices and reported that socio-economic status, education and contact with agency - representatives were significantly related.

2.3. SOCIO CULTURAL FACTORS ASSOCIATED WITH ADOPTION OF IMPROVED PRACTICES.

The introduction of approved/recommended practices or change programmes through change agencies has generated conflicts and contradiction in rural and traditional societies. This is usually more dramatic where the "new idea for sale" by practice is at variances with the prevailing norms, belief systems and values of the rural community.

Williams (1978) argued that the Nigerian farmer was surrounded by many deep-rooted socio-cultural factors which hinder him from accepting change. He observed that one of the most important of

such factor is land tenure system in village organization, followed by family system and community feelings.

Williams (1972) reported that farmers refused to adopt NS1 maize because they could not sell it, people would not buy it because they disliked the yellow colouring it gave to foods. He further stated that farmers refused to grow J26 cotton because the cultural practices recommended by specialists were too expensive and returns too low. It therefore appears according to Williams (opt cit.) that the diffusion of innovations constitute a special problem which must be tackled with some ingenuity.

He also indicated that belief - structures were important in programmes of change, especially in diffussion and adoption of innovation that the change agent therefore should be aware of them as they provided a basis for the behaviour of people in a social system.

Bradfield (1966) looked into factors promoting change and social barriers to change. He identified tradition, belief in ones own culture, pride and dignity, relative values, customary body positions and social structure as factors that could militate against innovation. Adams (1982) stressed the importance of social systems to adoption. He cited how in most social systems there is an informal hierachy or "pecking - order" which determined who interacted with who and under what circumstances, and this according to him

influenced the readiness of an individual to adopt innovations.

2.4 SOCIO-PSYCHOLOGICAL FACTORS ASSOCIATED WITH ADOPTION OF AGRICULTURAL INNOVATIONS

Ogionwo (1972) on his own part ascertained that social-psychological factors such as personal beliefs and familism Played a vital role in adoption behavior. Voh and Atala (1982) observed in their study of knowledge and use of recommended sorghum practices by farmers in Gusau Agricultural Development Project area, that the two agronomic practises thining and spacing between holes which were not adopted was because they conflicted with traditional practices of the farmers.

Rogers et al (1968) observed a positive relationship between achievement motivation and overt adoption by farmers.

Ditcher (1971) dramatised the importance of motivation in behavior change when he asserted that "changing human behavior without understanding motivations is like trying to start a stalled car by kicking it".

2.5 ROLE OF CHARACTERISTICS OF INNOVATION ON ITS ADOPTION

Here, the influence of the characteristics of the improved technologies on its own adoption is discussed.

Lionerberger (1960) while studying the characteristics of innovations affecting adoption and non-adoption of improved

agricultural practices, found that complexity of the practice is associated with change in existing practice. Abalu and Yayock (1980) examined the reasons behind low rates of adoption of improved technology in Northern Nigeria and concluded that low rates of adoption observed did not necessarily reflect innate undersirable phychological characteristics of small farmers. Rather they probably reflected the inappropriateness of the technologies being recommended and the limited access most serious farmers had to these technologies.

Monu and Omole (1983) in their study of adoption of selected number of recommended farm practices among a sample of cocoa farmers in Oyo State convinced that the profit acruing to the farmer in adopting the innovations was found to be very crucial in explaining differential adoption.

Rogers (1962) emphasised five characteristics of innovation and maintained that it was the per-ception of such characteristics by individuals in a social system that affect its rate of adoption. Those characteristics are "relative advantage". "complexity" "divisibility" "compatibility" and "communicability". Ladipo and Rout (1982) reported that acceptability of improved varieties of maize by farmers in a pilot study of Isoya-Rural Development Project was associated with profitability.

Obibuaku (1966) studied the socio-economic problems in adoption process. The Hydraulic oil palm press high rate of adoption and its subsequent discountinuance were explained. The machine had a serious disadvantage for them because by using it the traditional by-product which they had generally sold for fuel could not be obtained.

OTHER FACTORS:

It has been observed and demonstrated (Rogers and Shoemaker opt cit.) that the more widely an individual has travelled, the higher the probability that he had got exposed to various sheds of new ideas. Hence early adopters tend to be cosmopolite, have more contacts with change agents, higher knowledge of new ideas greater credibility with change agents than later adopters. Other antecedent factors to innovativeness according to them included leadership and social participation.

2.6 THEORETICAL FRAME-WORK

Small-scale farmers are not by nature resistant to change perse. If they appear unresponsive to agricultural programmes or improved practices designed to improve production and raise their standard of living, it is because of social economic and physical environment in which they operate. Factors associated with adoption processes have been studided in a number of countries and adoption behavior is seen as being influenced by a number of factors such as personal

characteristics and situational variables among other things. This conceptual frame work will from the basis of this study.

CHAPTER THREE

3. METHODOLOGY OF THE RESEARCH

This chapter is divided into the following sections:

- Area of study
- Sampling procedure
- sample size
- procedure for data collection
- Measurement of variables and
- statistical analysis

3.1 AREA OF STUDY

The study was carried out in four villages namely Kudan, Hunkuyi, Doka and M'aji, all in newly created Kudan Local Government out of Zaria Local Government Area of Kaduna State of Nigeria. The villages are all situated along the old Kano Road about forty kilometres from Zaria town, with the exception of Ma'aji village which is situated in about five kilometres off major road, though motorable. Hunkuyi is about six kilometre to Kudan, while Doka is about three kilometres away. Hunkuyi and Doka had linear settlements while Kudan and Ma'aji were of nucleated type settlements. Doka had the largest population with about 2,000 farm families, while Kudan which was the local government headquarters consisted of 1,800

farm families, Hunkuyi 1,300, and Ma'aji 700 respectively[2]. The people were pre-dominantly small scale farmers who cultivated grain crops or cereals. Namely maize, sorghum, Guidea corn, millet, etc.

The four villages were all attached to the extension programmes of Sámaru College of Agriculture and Institute for Agricultural Research/ Agricultural Extension Research and Liaison Services, Ahmadu Bello University, Zaria. Their extension service in these respective villages were organised to transfer the technological packages for improved maize, sorghum, groundnuts' cowpea and cotton etc. The package contains physical elements such as fertilizer, improved seeds, chemical (seed-dressing and insecticides) and farm equipment like ox ploughs, sprays and tractors which farmers are encouraged to purchase from Agro-Service or farm service cnetre. Related agronomic practices like ridge-spacing and plant density to get prescribed level of plant population and crop protection are also included in the package. Crop chosen for this investigation was maize.

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[2]These figures were given by the respective village heads. Though there were no records to confirm the accuracy of the figures as at the time of the investigation.

3.2 REASON FOR CHOOSING MAIZE

Maize was chosen because it is one of the most important cereal crops grown in the area of study. It is a dual purpose crop which serves as both food and a feed crop for both human and livestock In Nigeria, maize offers a relatively cheap source of food for the rapidly developing poultry and piggery industries. The grains form at least 60 percent of the compounded ration of poultry and swine.

Olayide et al (1982) while using 1979/80 as the base year for projection of estimated food deficits and surpluses (1,000 tones) recorded 602.84 deficit by 1984/5. Hence, this validates the urgent need for the use of improved technologies for rapid production.

3.3 SAMPLING PROCEDURE

Selection of villages for this study was 'purposive'. In order to select the villages certain criteria were decided upon.

1. The village had to be accessible by road even during raining season to allow for field observations of how farmers did things.
2. The selected village should be one in which extension service had made deliberate attempts of introducing change or recommended practices.
3. The village had to be in Zaria environ with which the researcher is familiear with their farm practices in order to facilitate supervision of day to day administration of the questionnaire.

4. The village to be chosen should be one that had not been flogged with much research studies. The four villages satisfied all the four conditions and were consequently selected.

3.4 SAMPLE SIZE

Out of about 5,800 house-hold heads living in these four villages during the period of study, 124 were randomly chosen.

The choice of house-hold heads was based on the assumption that they were the main decision makers as far as farm operation were concerned.

Distribution of Respondents according to villages is given below.

TABLE I :
No = 124

VILLAGE NAME	FREQUENCY	PERCENTAGE
HUNKUYI	30	24.2
Doka	14	11.3
kudan	60	48.4
MA'AJI	20	16.1
TOTAL	124	100

3.5 PROCEDURE FOR DATA COLLECTION

A structured interview schedule consisting of both close and open ended questions were used to collect data from farmers. Data included the following information about the farmers.

(a) Their demographic characteristics.

(b) Adoption behavior.

Secondary data, such as the lists and details of improved technologies advocated were obtained from IAR/AERLS, Samaru College of Agriculture and Agro-Service Centres in the villages. Population figures were obtained from village heads, who had lists of able tax payers.

3.6. SELECTION OF VARIABLES

In order to highlight other factors associated with adoption of improved farm technologies, a number of variables that were found to be significantly associated with adoption in order studies were investigated. These variables were age, level of formal education, literacy level, number of plots, size of plots, cosmopoliteness, farming experience, membership of formal social organization, leadership role, Tenure-Status, socio-economic status, number of dependents, number of farm assistants, contact with extension agents and observation in demonstration plots. Adoption itself served as dependent variable.

3.7 MEASUREMENT OF VARIABLES

ADOPTION OF IMPROVED FARM TECHNOLOGIES

Six improved practices were included in the survey. Namely, improved variety, fertilizers, insecticides. Herbiticdes. spacing and seed-rate. Adoption index for each respondent was calculated by adding up the number of practices he reported using. In order to find which of the practices were consistently adopted an attempt was made to separate those who were high adopters from those who were low adopters. This was done by comparing highest and lowest adoption score for the numbers of adopters of each single practice. Each practice adopted was credited with one point and non-adoption with 2 points. So high adopters = 6-7 points, average = 8 - 9 points, low adopters = 10 - 11 and Noadoption = 12 points. The index so constructed formed the dependent variable.

A G E

This was measured by the age given by the respondent at the time of study. The farmer was asked how old he was, and it was recorded This was later categorised into old age = above 50 years, Middle aged = 35 - 50 years, young - 18 - 34 years.

SIZE OF FARM

Time limitation outlined earlier, made it impossible to go into the farms of respondents to measure the area of each farm. Local acres as given by the farmers were used to estimate the farm sizes.

FARMING EXPERIENCE

This was measured by numbers of years the farmer had been farming in his own. They were also asked if their parents were farmers.

EDUCATIONAL LEVEL

This was measured by a number of years of formal schooling the respondents had had.

LITERACY LEVEL

"As measured by ability to read and write agricultural instruction in English or Hausa/Arabic text.

TENURE STATUS

Respondents were asked how they acquired the various farm sites on which they were operating. Whether this was "Gado" which means inheritiance or "Aro" which means rented to be payed for in cash or kind or whether the land was bought.

COSMOPOLITENESS

Was measured by access to farm information through the use of media e.g. Agro-news via Radio and T.V. or exposure to information on farm-matters through frequent visits to towns and cities.

PARTICIPATION IN SOCIAL ORGANISATION

Was measured by membership of Farmers extension union or co-operative farmers union. This was scored (1) for members and (2) for non-membership.

INCOME LEVEL

This was measured by the reported monetary value of the annual farm yield. This was classified into higher, Middle and Low. For the purpose of the study Higher income was any income above ₦2,400 middle ₦2,400 and low below ₦1,200 per annum.

CONTACT WITH EXTENSION AGENT

This variable was measured by asking the farmers whether they had ever been visited by extension agents to offer advice on farm matters. They are further asked to indicate the frequency of such visits. This was categorised into not often (1) often (2) very often (3).

SOCIO-ECONOMIC STATUS

This variable has several aspects. The nature of the study, did not allow for use of convectional scales. This study measured socio-economic status by scale of possessions (mostly durable goods, such as radio, tape recorder, beds, bicycle, wrist watch etc.) These items were subjected to item analysis with appropriate monetary value attached to it and categorised into High , which was scored (1), medium (2), and low (3).

3.8 STATISTICAL ANALYSIS

Data for this study were computerised and following statistical methods of analysis used.

FREQUENCY

This was used to find the proportion of adopters and non-adopters in the villages. The distribution of four categories of High adopters, average adopters, low adopters and non-adopters.

PERCENTAGES AND MEANS

Were used, where appropriate to report the demographic and farm characteristics of the respondents.

(2) Percentages were also used to report extent of adoption of improved technologies.

CORRELATION COefficient

The hypothesis for ascertaining factors associated with adoption of improved farm technologies were stated in such a way as to warrant the use of simple correlation analysis to test relationships between adoption and selected characteristics of maize growers.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF MAJOR FUNCTIONS

4.1 This chapter will deal with empirical findings of the research work.

It will highlight the demographic characteristics or back ground information of the respondents. This is to say, their personal, economic and socio-psychological characteristics.

AGE

Among the respondents selected for study, 29 percent fell between 20 - 35 years, 56.6 percent were within the range of 36 - 50 years while 14.5 percent, were above 50 years. The observation on age are presented in Table 2.

TABLE 2

DISTRIBUTION OF FARMERS ACCORDING TO AGE

N = 124

Age in Years	No. of Respondents	Percentage
20 - 35	36	29
36 - 50	70	56.5
Above 50	18	14
Total	124	100

MARITAL STATUS

Questions probing into the family back ground of the respondents were also asked. It was revealed that 86.3 percent of the farmers were married, 11.3 percent were single, 1.6 percent were widowed while 0.8 were divorced. This is shown in table 3 below.

TABLE 3

DISTRIBUTION OF FARMERS ACCORDING TO MARITAL STATUS N=124

Marital Status	No. of Respondents	Percentage
Single	14	11.3
Married	107	86.3
Widowed	2	1.6
Divorced	1	0.8
TOTAL	124	100

On number of children, 30.6 percent had more than ten children, while 69.4 percent had less. Whereas, about 47.6 percent had between one to five people assiting them on their farm, which constituted absolute frequency of 50 out of 124 farmers interviewed, 14.5 percent had between six to ten people assisting them, while

33.8 percent constituting 47 out of the farmers interviewed had no body assisting them on their farms.

Still on family matters, concerning number and age of dependants, 96 out of 124 respondents interviewed had children below 10 years who were dpendants, while 28 had dependants who were mainly adolsecents above 10 years.

RELIGION

Majority of the respondents were muslims. The constituted 95.2 percent of the total sample. There were only four christians, I with traditional religion and one person with no religion at all.

TABLE 4

DISTRIBUTION OF FARMERS ACCORDING TO RELIGION

N= 124

Religion	Frequency	Percentage
Islam	118	96.2
Christian	4	3.2
Traditional	1	0.8
None	1	0.8
TOTAL	124	100

FARMING EXPERIENCE

To assess their farming experience, respondents were asked how long they had been farming on their own.

About 39.5 percent had over 10 years experience. In order to ascertain whether the farmer had a sort of ascribed or achieved status in relation to farming . 81.9 per cent reported that their parents were farmers and 11.1 percent answered no, while 6.4 per cent gave no response to the question.

LEVEL OF FORMAL EDUCATION

Level of formal education was very low among the farmers interviewed. This accounted for about 2.4 per cent. Majority had arabic education 66.1 per cent. while 5.6 percent had no education whatsoever. However, quite a few had both adult, Koranic and formal education. The percentage of farmers in this category were abbout about 25 per cent.

TABLE 6

DISTRIBUTION OF FARMERS ACCORDING TO THE FORMAL EDUCATION

N = 124

Level of Formal Education	Frequency	Percentage
No education	7	5.6
Formal Schooling	3	2.4
Adult education	1	0.8
Koranic/Arabic School	62	66.1
2 - 4	31	25
Total	124	100

FUNCTIONAL LITERACY

This was based on the respondents' ability to read agricultural instructions or text presented to them in English, Hausa and/or Hausa text in arabic script. About 10 percent could read hausa texts. 85 percent arabic, 5 percent English while 20 percent could not read at all.

TENURE STATUS.

Tenure status or right to cultivate exploit, utilise or ownership of farm land was investigated. Respondents were asked how they acquired the various farm sites on which they were operating. Their responses were categorised into two major parts (i) inherited/or bought which both lead to full rights on the exploitation of the farm land and (ii) Rented/ leased or pledged which does not confer paramount or full right of ownership on the user. The most common method of land acquisition in this area of study is through direct ownership. About 80.5 percent inherited or bought their farmlands while 39.5 per cent either rented for cash or kind or pledge for their farm lands.

FARM SIZE

Farmers interviewed were asked to give an approximation of the size of their aggregate farm which they gave in their local acres hence it was left as such. About 45.2 percent affirmed they had farm lands above 20 acres while 278 percent reported they had farm lands between 10 - 20 acres and 23.1 had farm land less than 10 acres.

ACCESSIBILITY OF FARM SIZE BY ROAD

Respondents were asked whether their farm sites were located by the road side or accessible by major road and motorable. 83 per cent had farms accessible by roads while 16.9 percent were inaccessible.

OCCUPATION

As indicatedin table 6 below, questions were asked to provide the break-down of respondents according to occupation either on full-time basis or part-time. Respondents were also asked to indicate which other occupations, if any, they were engaged in apaprt from farming. About 54.8 percent making a total of 68 out of farmers interviewed confirmed they were full-time farmers 31.% totalling 39 combined farming activities with petty trading/contracts, 6.5 were civil servants, 5.6 artisans and 1.6 cattle rearers.

TABLE 6

DISTRIBUTION OF RESPONDENTS ACCORDING TO OCCUPATION

N .124

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Occupation	No.of respondents	Percentage
Purely farming	68	54.8
* Civil servant	8	6.5
* Trading/Contractor	39	39.5
* Cattle rearing	2	1.6
* Artisan	7	5.6
Total	124	100

* = plus farming.

LEVEL OF INCOME

Respondents were asked to give an estimate of income realised from farming activities or farm yields per annum. Results were categorised into three levels as given below. About 25.8 percent realised below ₦1,200 (minimum wage) per annum, 34.7 percent realised between ₦1,200 and ₦2,400 while 39.5 realised above ₦2,400 per annum.

TABLE 7

DISTRIBUTION OF FARMERS ACCORDING TO LEVEL OF INCOME

N .124

INCOME	Frequency	percentage
Below ₦1,200	32	25.8
Between ₦1200 - 2,400	43	24.7
Above ₦2,400	49	39.5
TOTAL	124	100

MEMBER OF FORMAL SOCIAL ORGANISATION

The study inquired about the participation or membership of respondents in formal social organisation. Hence they were asked asked whether they belonged to farmer agricultural or co-operative extension union. 25 out of the farmers interviewed claimed they were members of either co-operative or farmers Union while the remaining

99 or 79.8 percent were none members.

LEADERSHIP ROLE

Asked which leadership role they performed in the village either as village head, scribe, Imam etc. 19.4 percent reported performing one leadership role or the other while 80.6 per cent were not.

EXTENSION AGENT CONTACTS

Only 18.5 percent indicated ever been visited up to twice by agents for the maize cropping season to offer any advice. Sixty six percent alleged they had never been visited at all for years. While 19.4 percent had a visit.

VISITS TO DEMONSTRATION PLOTS

Farmers interviewed were asked whether they ever made personal attempts or tried to visit demonstration plots to observe and learn new farming techniques or improved techniques. 25 percent reported they visited demonstration and benefited from them while 75 percent did not border to visit demonstration plots.

COSMOPOLITENESS

In order to determine farmers exposure to external source of information on agricultural matters, they were asked whether they travelled out of the village to or from cities. Six percent frequently, 54 percent travelled, though not often. 36.3 percent often and 4.1 never travelled.

Still on ccamopoliteness respondents were asked whether they listened to Agro-news or agricultural education/farming programme over radio/Television or mass-media. Results given is presented in table 8:

TABLE 8

DISTRIBUTION ACCORDING TO MASS?MEDIA EXPOSURE ON AGRICULTURAL MATTERS

No:124

EXPOSURE TO MASS-MEDIA	No. of RESPONDENTS	PERCENTAGE
Not at all	15	10.5
Not regular	26	21.0
Regularly	81	64.3
Very Regular	4	3.2
TOTAL	124	100

4.2 EXTENT OF ADOPTION OF IMPROVED FARM TECHNOLOGIES

One of the objectives of this research was to determine the extent to which farmers had adopted the recommended or improved farm technologies. Farmers were therefore, asked whether or not they had ever heard of the six practices under investigation and further, which of the practices they were following or had followed during the survey period. On the basis of the results, a number of observations were made.

Fore-most, it was observed that quite a large number of the farmers were aware of all the recommended practices. Secondly a considerable number adopted the practices.

TABLE 9

PERCENTAGE OF ADOPTERS AND NON-ADOPTERS OF EACH RECOMMENDED PRACTICE

No.124

Improved practices	Adopters	Percentage	Non-Adopters	P RCENTAGE
Fertilizer	109	87.9	15	12.1
Improved Seeds	105	84.7	19	25.3
Seed-dressing	70	56.5	54	43.5
Herbicides	8	6.4	116	93.6
Spacing	65	52.6	59	47.4
Seed rate	96	77.4	28	22.6

Fertilizer is the most highly adopted by the farmers. One hundred and nine out of 124 respordents interviewed, adopted fertilizer, constituting 87.9 per cent. Next to fertilizer is Improved seedlings adoption with about 84.7 percent followed by seed-rate 77.4 percent, seed-dressing 56.5 percent and spacing with 52.6 percent respectively. While the least practice adopted was herbicide adoption with only 8

respondents out of 124 adopting. This proprotion was only about 6.4 percent.

ADOPTION SCORE

As mentioned under methodology, adoption index was computed for the improved practices under investigation after item analysis. After the total score, the respondents were categorised into high, medium and low. The distribution of these various categories is shown in the table 10:

TABLE 10

DISTRIBUTION OF ADOPTION SCORE AMONG RESPONDENTS

No:124

ADOPTION INDEX	NUMBER OF RESPONDENTS (FREQUENCIES)	percentage
Higher Score	48	38.7
Medium Score	50	40.3
Low	22	17.7
No Adoption	4	3.2

High adoption score - that is respondents that adopted at least five out of the six recommended practices constituted48, or about 38.7 percent, medium score adopters were 40.3 percent of those interviewed, while the low adopters were 17.7 per cent, that meant

those that did not adopt more than two practices, whereas 4 respondents which constituted about 3.2. percent did not adopt at all.

This study also sought identify reasons given for non-adoption where applicable.

4.3. REASONS GIVEN FOR NON-ADOPTION OF IMPROVED FARM TECHNOLOGIES.

Reasons given for non-adoption of recommended practices where applicable, vary from one practice to the other. An example is that given by those who did not adopt Improved seeds is illustrated in table 11 below:

TABLE 11

REASONS FOR NON-ADOPTION OF IMPROVED SEEDS

No:124

REASONS	NO. OF RESPONDENTS	PERCENTAGE
Seeds notavailable	11	8.9
Expensive	8	6.5
Not palatable	1	0.8
Not marketable	2	1.6
N. A.*	102	82.2

*N.A. = Included those that adopted and hence the question may not be applicable to them.

Another example is demonstrated by the response of those did not adopt fertilizer

TABLE 12

REASONS GIVEN FOR NOT APPLYING FERTILIZER BY NON-ADOPTERS

No:124

Reasons	Frequency	Percentage
Not available	35	28.2
Complex	6	4.8
Poisonous	1	0.8
Expensive	2	1.6
Not traditional	26	21
Not Applicable	51	45.6

On herbicide adoption which was least adopted among the six practices, the following reasons were given:

TABLE 13

REASONS GIVEN FOR NOT ADOPTING HERBICIDES

No:124

Reasons	No. of Respondents	Percentage
Not compatible	12	9.2
Results not better off	8	6.0
Not Knowledgeable	19	15.3
No response	4	3.2
Not Applicable	81	65.3
Total	124	100

Herbicide was the least adoptedbut they did not seem to have any serious reasons for not adopting it.

When asked whether they could adjust or ready to adopt fully if adequate advice is provided on herbicides, 112, costituting 90.3 percent indicated their willingness.

ASSESSMENT OF THE EXTENSION SERVICES IN RELATION TO TECHNOLOGIES OFFERED BY THE FARMERS

An open ended question was thrown to the respondents to explore relevance services relative to improved technologies advocated. The question "what do farmers (you) think of the Extension service and the technologies offered?" Various reasons they gave ranged from approval in terms of energy conservation, increased yield, better qualities, profitable venture were all categorised as favourable or suitable, while all disapprovals given ranging from complexity, non-comformity, triability were captioned not favourable or "unsuitable". This is shown in the table 14.

TABLE 14

FARMERS ASSESSMENT of extension services AND IMPROVED TECHNOLOGIES

N = 124

Comments	Frequency	Percentage
Suitable	86	69.4
'nsuitable	13	10.5
Not Applicable	21	16.9
Can't tell	4	3.2
Total	124	100

4.3 RELATIONSHIPS OF SELECTED CHARACTERISTICS OF FARMERS WITH ADOPTION OF IMPROVED TECHNOLOGIES

Amongst the prime objective of this study was to assess the relationships of selected characteristics of farmers interviewed with adoption of improved technologies. As mentioned in chapter one, the following hypothesis were tested.

There is no significatnt relationship between adoption of improved farm technologies and age of farmer, size of farm, income level, educational level, extension agent contact, tenure-status, farming experience, membership of formal social organisation. The Hypotheses were stated in the null form to be accepted or rejected.

The eight variables selected served as the independent variables while adoption of improved technologies on its own served as the dependent variable. The relationships between dependent and independent variable was then determined through intercorrelation. Results obtained are presented in table 15:

TABLE 15

PEARSON CORRELATION COEFFICIENTS AND LEVELS OF SIGNIFICANCE

N = 124

ADOPTION OF IMPROVED FARM TECHNOLOGIES

Variable	Correlation Coefficient(r)	Cases	Level of Significance
Age	0.1434	124	0.05*
Farm-size	0.1142	124	0.10 NS
Income	0.2280	124	0.005**
Educ. level	0.1970	124	0.01*
Extension Agent Contact.	0.0486	124	0.29 NS
Farming experience	0.1642	124	0.05*
Membership of formal Social Organisation	0.1074	124	0.11 NS
Tenure Status	0.2143	124	0.008**

NS = Not Significant

** = Strong Correlation (Highly significant)

* = Significant

From the table above it was observed that both age, income, educational level, farming experience, Tenure-status were all positively correlated and significantly related to adoption of improved technologies at various levels as indicated on the table 15.

The null hypotheses that there were no relationship between these

variables would therefore rejected and alternative hypotheses that there were relationships heither mentioned be accepted..

However, it was discovered that farm-size, Extension Agent contact, membership of formal social organisation, even though all positively correlated with adoption were not significant because the relationship was a weak one.

The null hypotheses (ho) stated in chapter one, to test the relationship of the five variable found to be significantly related to adoption are therefore rejected and in favour of alternative hypotheses (H_1) While the null hypothese that there were no significantly relationship between adoption and size of farm, membership of co-operative or extension union and extension agent contacts would be retained.

CHAPTER FIVE

5. DISCUSSION OF MAJOR FINDINGS

In the preeding chapter the empirical findings were presented. The personal, socio-economic and farm characteristics of the respondents, including the relationship of these characteristics were high-lighted.

It was noted that a high percentage of the respondents were middle aged and fairly above 50 years. They were mainly muslims with Koranic/Arabic education rather than Western formal education which was low.

Direct ownership of land was paramount, only very few declared they had large farm size mostly accessible by major roads, motorable at all seasons. Half of the respondents interviewed were full-time farmers while the other half combined farming with other occupations like civil servants, petty trading constractors and cattle rearing. A low proportion of the respondents i.e. - 25 percent realised less than (₦1200) per annum, which was the minimum wage level even with government civil-service during the time of investigation. A high proportion did not occupy any leadership role, neither were they actively involved in formal social organisations nor farmers co-operative union. In terms of respondents exposure to extension agents, quite a negligible number received few, if any

visit at all. Infact 66 percent alleged they were never visited nor consulted at all. Neither did they intimate themselves with demonstration plots.

While the farmers revealed they did not travelled to or from cities regularly in search of information on agricultural matters, a large proportion of the sample listened to agricultural news and farming programme of AERLS in hausa over the radio and Television regularly. The respondents themselves almowledged the relevance of the knowledge acquired in such programmes to their farming systems and simultanenously advocated for more rapport by extension agents.

Considering the extent of adoption of the recommended practices, it was found that the farmers were aware of and have infact adopted all the practices to a considerable extent, except herbicides.

For those that did not adopt some practices, reasons mostly given were non-availability of inputs, non-conformity of the new practice with the existing one, complexity of its application etc.

The major findings were centered on the relationships of selected characteristics of farmers to adopt-ion in which age, occupation, farming experience, tenure status, education, agent contacts, farm size, income were intercorrelated.

From table 15, adoption of improved technologies was significantly and positively correlated with age, income, educational level, farming experience and tenure status. These results were found consistent with other research findings conducted in other parts of the country and the world.

Farm size, membership of formal social organization and extension agents contact were not significantly assocated with adoption. These results seemed to deviate from some research traditional findings on adoption (Voh opt. cit) Rogers(opt. cit) etc. However, when viewed critically and objectively, it would be realised that factors responsible for these unique results were situational. These variables would be examined one by one.

Age: The correlation coefficient between age and adoption was positive and significant at 5 percent level. This meant the older the farmers in age, the more practices he adopts. This was consistent with research findings of Singh (1966), Rai (1966) Rahudkar (opt. cit.); Bose (opt cit), etc.

With income, as seen on table 15 too, it was positively correlated and significantly related to adoption. This finding was consistent. with findings of Voh (opt cit) Reddy and Reddy (opt cit) March and Coleman (opt cit).

Another variable found to be significantly associated though negatively correlated with adoption was education. It was significant at .01 level. This result was also in conformity with other studies i.e. Clark and Akinbody (opt. cit) Voh (opt cit) etc.

Tenure status was positively correlated and highly significant to adoption at .008 level. An example of a similar finding was that of Bose in India (opt cit who found that the same thing was applicable

to farming experience which was found significant to adoption at .05 level.

Other findings of this study which seemed at variance with research traditional findings in adoption theory were farm size, membership of social organization, Extension Agent contact. It must be mentioned that these variables, are not static. They vary with situations, time and place. There were available and reasonable evidence to justify the outcome of this findings. For example, farm-size and membership of social organisation were positively correlated but not significantly related to adoption. It must be noted that method of acquisition of land is mainly by direct ownership of through inheritance known as "Gado". The cultural orientation to ownership and exploitation of farm lands go a long way to influence or determine the size of farm an individual can muster. It should be borne in mind that the crop under investigation is maize, which is a seasoned crop, for which reason the relationship of farm size to adoption will be affected.

With extension agents contact, it is evident that the ratio of an agent to farmers was inadequate i.e. it was recently estimated to be a ratio of one agent to 6,000 farmers (Adams 1982). Williams ((opt cit) recommended that an agent should be given about six years before he is transferred to another place to enable him make necessary impact desired in extension education.

The few extension agents were not usually mobile. Even if they were, it would not be practicable for them to go round a total number of the numerous farmers scattered all over their farms. It is not surprising therefore that both demonstration plots and agents contacts were not significantly related to adoption in this study. It would be recalled that about 66.1 percent of respondents interviewed allegedthey had never been visited by extension agents. Hence the impact and awareness of recommended practices must have been made solely by the extension studnets in training and hausa - radio/television farming programmes known as "Noma Yanke Talauci" Infact about (64.3)percent confirmed they watch the programmes regularly.

None effectiveness of professional extension agents columinated in non-challant attitude of farmers to formal organisations like farmers extension union or farmers co-operative society. When the agents were not even seen regularly who would summon or induce farmers and educate them on the relevance of such association?.

SUMMARY AND CONCLUSION

The final bit of this work is to draw on the implication of the findings and raise some suggestions for future execution of planning of extension programmes.

It is apprent from this study that IAR/College of Agriculture, Samaru' of Ahmadu Bellow University, Zaria were reaching their clients as evidenced by thefarmers' extent of adoption of the improved technologies.

With results of five out of the eight selected characteristics associated and correlated with recommended practices, this would seem to indicate that theories of adoption behaviour applicable elsewhere would be relevant here. But the implication of those variables which seemed inconsisten' should be examined (variables not related to adoptions.)

It implies that farmers would adopt irrespective of sizes of farm, or whether extension agents visited clients or not and membership of social organisation, where farmers can interact and benefit from one another.

However, suffice it to mention that these variables undoubtedly would speed the rate of adoption and should be encouraged. Their absence or deficiency in adoption processes are constraints, that require urgent attention. This study recommends functional educational literacy and intensified efforts aimed at involvement of of extension agents and participation of farmers themselves. This could be

attained through formal associations to facilitate multiplier efforts of the knowledge acquired from the extension programmes.

Implications of the study as indicated by table 15 was that age, Income, educational level farming experience, and land tenure status were important attributed or characteristics influencing adoption of improved technologies. By this it was meant that acceptance of agricultural innovation would be most enhanced if directed to the aged, educated, experienced in farming with considerable level of income and right to holdings of direct control over their piece of farm lands.

On the other hand, it was by implication, proven that adoption was not motivated by membership of formal social organisations like farmers extension union and size of farms.

If one was to go by these resolution it means extension service would be directed to the progressive farmers as done in most countries to the neglet of the numerous poor peasants. That is "betting on the strong The non-association of extension contacts with adoption, meant they did not constitute popular sources of information. As mentioned earlier their unpopularity was due to their low number. While the main method of extension education through mass-media viz: Radio/Television should **not** be discouraged, it is here-in suggested that in view of the low ratio of extension agents to the clientele the ministry of agriculture in Kaduna State should be advised to increase their number through

training and recruitment of more agents.

The ministry of Agriculture should reduce the present ratio of client/Extension agent, to a manageable size of 1 - 500 (1 agent to 500 farmers) to enable agents cope with the demand of agricultural development being advocated by the country's policymakers.

It is also suggested that co-operative ventures and farmers Extension union by encouraged among farmers. It will serve as forum for nurturing and sharing innovative ideas.

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A P P E N D I X

A STUDY OF RELATIONSHIPS OF SELECTED CHARACTERISTICS OF MAIZE GROWERS WITH THEIR ADOPTION OF IMPROVED FARM TECHNOLOGIES IN KADUNA STATE.

CASE OF SMALL- SCALE FARMERS IN SELECTED VILLAGES IN KADUNA STATE

farmers name: _____ VILLAGE: _____

INTERVIEWER _____ DATE: _____

FARMERS DEMOGRAPHIC DATA

1. SEX

(m) MALE ( ) FEMALE

2. AGE

How old are you?

3. MARITAL STATUS

( ) Married ( ) single ( ) widowed

( ) divorced

(ii) If married, number of children

Age	MALE	FEMALE
0 - 5		
6 - 10		
11 - 15		
16 - 20		
TOTAL		

(iii) Out of your children, how many still live at home? _____

(iv) Live in this village but in another household?

_____.

(v) Moved out _____ (vi) How many work on your farm?

_____.

(vii) About how many depend on you for livelihood?

_____.

4. LITERACY

( ) formal education ( ) adult education

( ) no education.

State number of years spent.

(ii) Children's education

( ) Arabic ( ) Primary ( ) Secondary

( ) Post Secondary.

Indicate number of each.

5. RELIGION

( ) Islam ( ) Christian ( ) Traditional

( ) Others.

6, FARMING EXPERIENCE

(1) How long have you been farming on your own?

_____

(ii) How much of your time do you devote to crop farming?

( ) Full time ( ) part-time ( )

( ) no response.

(iii) Are your parents farmers? ( ) Yes

( ) No

(iv) If you are not a full-time farmer which other occupations do you engage in? ( ) Civil servant

( ) petty trading/contractor ( ) artisan Mech.

( ) Others.

7. FARM SITE AND LOCATION

(i) ( ) Number of plots ( ) Total size of farm(s) in hectares.

(ii) ( ) Distance of farm from farm service centres.

(iii) ( ) Distance of farm from project Headquarters.

(iv) Accessibility of farm Location by road ( ) Yes

( ) No.

8. INCOME LEVEL

What was your estimated income from farming during the past season? _____(per annum).

9. Name number of items (durable consumer goods your have . e.g. Bed, Radio etc._____

10. CONTACT WITH EXTENSION AGENT

(i) Have you ever been visited or advised by Extension Agents on improved practices? ( ) Yes

( ) No.

(ii) How often? ( ) Once in a month ( ) more than once monthly ( ) once in two months ( ) Once in three months ( ) specify average number of visits in six months.

(iii) Have you ever on your own deliberately gone to demonstration plots around your farm to see how crops are grown? ( ) Yes ( ) No.

TENURE STATUS

11. How do you obtain the piece of land for your present farm operation. (a) Inherited (b) bought (c) pledged) (d) Rented or leased.

12. STATUS AND PARTICIPATION IN SOCIAL ORGANIZATIONS.

(i) Do you hold any leadership position in the village district or Local Government Area ?

( ) Yes ( ) No.

(ii) Which of the following status or leadership position do you occupy ( ) village head ( ) Scribe or Imam

( ) District head ( ) Household head of Clan

( )membership of Cooperative/Farmers Union ( ) Others.

(iii) In which ceremonies do you normally participate?

_____.

(iv) How often? ( ) not often ( ) often

( ) very often.

(v) Which part of the year ? ( ) Jan. - March

( ) Bpril - October ( ) Nov. -December

12. COSMOPOLITENESS

(i) How often do you visit and discuss farm activities with friends? ( ) not often ( ) often ( ) very often.

(ii) How often do you travel to or from the cities? ( ) not often ( ) often ( ) very often

(iii) How often do you listen to farming activities or programmes over radio/Television? ( ) regularly ( ) very regular.

(iv) Watch films and read leaflets or recommended practices ( ) not at all ( ) not often ( ) often ( ) very often.

ADOPTION OF IMPROVED FARM TECHNOLOGIES

14. IMPROVED VARIETY (AGRIC.)

(i) Do you plant the improved variety of maize seeds as recommended by IAR/MANR last season or this season?

( ) Yes ( ) No.

(ii) How do you obtain the maize seeds you planted last season for this season ( ) Agro Service

( ) Ministry of Agriculture ( ) owned seed from personal ban ( ) friends/neighbours. ( ) Others

(iii) Which variety ( ) name ( ) local.

Give Hausa's name if any.

15. SEED DRESSING

(i) Did you dress your maize seedling with any chemical before planting? ( ) Yes ( ) No.

(ii) If yes which chemical? _____

(iii) Did you encounter any problems? Specify _____

_____.

(iv) Will you like to continue the use of chemical applications?

( ) Yes ( ) No.

(v) If you did not apply any chemical why?

Could not obtain ( )

Use complex ( )

Expensive ( )

Not traditional ( )

Don't know ( )

Others _____

16. FERTILIZER APPLICATION

(i) Did you apply fe4tilizer to your maize in the last or current season as recommended by IADP? ( ) Yes

(ii) If you do apply, which type? What do you observe?

_____.

(iii) Will you like to continue the use of fertilizer in future? Why? _____.

Tedious task ( )

Expensive ( )

Results no better ( )

Extra Labour ( )

Not usually available ( )

Others specify _____

17. SEED RATE/SPACING

(i) Do you know what MANR or IAR Improved (recommended spacing are for planting maize ? Yes ( ) No.(

(ii) What is it _____.

(iii) Did you plant your maize as recommended by IAR using measuring stick? Yes ( ) No. ( )

(iv) If you will like to continue the spacing ?

_____.

(v) If no, why did you not use the recommended spacing?

Not compatible ( ) Results not better

( ) Not economical ( ) Others.

Specify _____.

(vi) Did you use the recommended seed rate per hectre e.g. 20kg? ( ) yes ( ) No.

(vii) Number of seeds per hole ( )

(viii) Did you think later? _____