



DEMOGRAPHIC CHARACTERISTICS OF RICE FARMERS AND ITS EFFECTS ON RICE PRODUCTION IN KURA LOCAL GOVERNMENT AREA OF KANO STATE, NIGERIA

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ABSTRACT: *The study examines the Demographic Characteristics of Rice Farmers and its Effects on Rice Production in Kura Local Government Area of Kano State, Nigeria. The different demographic characteristics of farmers which includes various socio-economic status of rice farmers is hypothesized to have significant impact on the farmers life style including the farming activities. Survey design approach was adopted using primary data source. Four hundred questionnaire were administered across the 10 wards / rice farming communities in Kura LGA using purposive stratified sampling frame. The data was subjected to descriptive statistics using Statistical Package for Social Sciences. It was discovered that the literacy level of respondents is low; the highest percentage (39.3%) attained only secondary school as their highest educational qualification; whereas only 20% attained tertiary educational status. This could be attributed to the availability of job opportunities in the rice farming (both rainfed and irrigated) which attract the youths to venture immediately after completing their secondary education, thereby hindering them from furthering education. It is recommended among others that the rice farmers should always be encouraged to further their education through many strategies including awareness campaign.*

KEYWORDS: Demographic characteristics, Rice, Farmers, Kura, Production



INTRODUCTION

In Nigeria, agriculture is a very important sector that provides job opportunities either directly or indirectly. About 70% of Nigerians get their sources of livelihood, either as local farmers, traders, labourers, manufacturers of fertilizer, manufacturers of farm tools and machineries etc. (Food and Agricultural Organization FAO, 1999; Odoemenem and Inakwu, 2011). Rice is one of the major staple foods in Nigeria, consumed across all geopolitical zones and socioeconomic classes. Rice consumption is increasing rapidly in Nigeria because of the shift in consumer preference towards rice, increasing population growth, increased income levels, and rapid urbanization (Kamai, N., Omoigui, L.O., Kamara, A.Y. and Ekeleme, F. 2020). It is because of the importance attached to rice as the most important food across the different regions and cultures in Nigeria that both farmers and governments at various levels give emphasis on how to boost the local rice production. The high demand which keep on increasing especially due to population explosion. In 2016, national rice demand was estimated at 6.3 million metric tons while domestic supply was put at 2.3 million metric tons. The deficit of 4 million metric tons was expected to be filled by import which is detrimental to the nations' economy' (Akinniran, T N and Faleye, G R, 2020 page 115). Many strategies were developed in order to achieve such goal desired by both government and rice farmers alike. Such efforts are starting to show results, as Nigeria's rice production rose from 3.7 million metric tonnes in 2017 to 4.0 million metric tonnes in 2018; it is on record that, the major rice producing states in Northern Nigeria are Kebbi, Borno, Kano, and Kaduna. Currently, most of the farmers producing rice rely on traditional technology with low use of improved input technologies (Kamai, N et al 2020).

According to the National Agricultural Technology & Innovation Policy (NATIP) of the Federal Ministry of Agriculture and Rural Development FMARD (2022-2027) (2022) summarily, 'the important goal of every nation is to attain food security. Over the years, Nigeria has made concerted efforts and developed several agricultural development policies to achieve food security, inclusive growth, sustainable economic diversification and wealth creation' (page 1-11). Food security is the first and foremost priority in the policy and achievement of any purposeful government. All other issues follow when a reliable food supply is achieved in a focused society, because that will be the bedrock of any meaningful development. The literacy level, land tenure system and so on may have direct effect on the awareness, perception, socialization, acceptability of the new farming techniques and technologies which will subsequently affect rice production in the area.

Statement of the Problem

Kura local government area is one of the most significant agrarian areas of Kano state, where majority of its inhabitant depend on farming (more particularly rice farming) as their main source of livelihood. The area is located within the Kano River Project (KRP) which is a modern integrated agricultural landuse development in northern Nigeria and a large scale irrigation project which allows for perennial (both rainfed and irrigation) farming seasons. Being the largest irrigation area in Nigeria with over 22,000 hectares (KRP 1) being developed. It serve as food basket to Kano state and other parts of Nigeria, producing variety of products like tomato, pepper, onions, okro, cabbage, wheat and rice. Understanding the farmers demographic characteristics could greatly help in devising strategies for enhancing their acceptability to modern scientific techniques and practices for better optimized productivity of rice and other agricultural products in the study area.



Justification

Demographic variables of the rice farmers such as age, gender, literacy level, land tenure system, participation in the farmers cooperative society, types and sources of information, farmland and family size and so on may have direct effect on the awareness, perception, socialization, acceptability of the new farming techniques and technologies which will subsequently affect rice production in the area. It is against this background that this study was conducted in order to establish the effects of such demographic factors on rice production in the area and proffer recommendations. It will also provide information to Agricultural Development Institutions in the state especially Kano Agricultural and Rural Development Authority (KNARDA), Hadejia-Jama'are River Basin Development Authority (HJRBDA) and other related agencies on the rice farmers demographic characteristics since it will finally affect the comprehension, acceptability and workability and expected productivity various inputs and efforts on the farmers for enhanced rice production in the area. It could also be useful in providing an insight or first hand information on the farmers for planning purposes. It will also provide useful information to teaming researchers who could build and continue from the delimitation of this study.

Aim and Objective of the Study

The aim of this study is to assess the rice farmers demographic characteristics and how it affect rice production in Kura LGA. This will be achieved through the following specific objective which is to:

- i. To examine the demographic characteristics of rice farmers and how it affect production

Research Question

Arising from the foregoing, the research question addressed on this study is:

- i. What are the farmer's demographic characteristics and how it affect rice production?

MATERIALS AND METHODS

This research adopted a survey design. Both qualitative and quantitative methods of research were employed in this study. The primary data was obtained through questionnaire, interview and field observation. Secondary sources of data includes the population data of the study area were obtained from the relevant agency and was used to determine the sample size of this research; map of the study area was sourced from the Cartography laboratory. Available literature such as journals, textbooks, conference proceedings, seminar papers, thesis, reports and web references were consulted. Four hundred (400) respondents were drawn from the 10 rice farming communities in Kura LGA (table 1a) using stratified purposive sampling frame. The data collected were encoded into the computer and statistical (Inferential and non-inferential) method of analysis were employed in this research using Statistical Package for Social Sciences (SPSS) version 20 was used to analyze the data generated using questionnaire and field observation. The quantitative data were analyzed using descriptive statistics (cross tabulation) method and results were presented in tabular form in frequency tables, and percentages.



Geography of the study area

Kano State is located in North West Nigeria. Created on May 27, 1967. The State has more than 20,760 square kilometers (8,240sq mi) of cultivable land and is the most extensively irrigated state in the country (Olofin, 1987). Kura Local Government Area is located between Latitude $8^{\circ} 25' 49''$ N and $8^{\circ} 49' 09''$ N of the Greenwich Meridian and Longitude $11^{\circ} 41' 07''$ E and $11^{\circ} 54' 17''$ E of the equator covering an area of about 206km^2 (80m^2) of cultivable land. It shares common boundaries with Garun Malam local Government Area from the west, Madobi Local Government Area from the North, Dawakin Kudu Local Government Area from the East and Bunkure Local Government Area from the South as shown in Figure 1. Kura is among the 44 Local Government Areas of Kano state Nigeria and was geographically located in the southern part of the state along Zaria - Kano express way which has a distance of about 35km from the state capital.

Table 1a: Description of the study sites

Sample ID	Sampling Locations	Relative Location	Longitude	Latitude
Kura 1	Karfi	Near Gundutse	E008 ⁰ 29'25.5"	N11 ⁰ 49'32.8"
Kura 2	Imawa	Near Karfi	E008 ⁰ 27'58.6"	N11 ⁰ 47'44.0"
Kura 3	Gajingiri	Near Daune	E008 ⁰ 29'36.7"	N11 ⁰ 44'41.0"
Kura 4	Dalili	Near Kura town	E008 ⁰ 27'04.1"	N11 ⁰ 47'02.9"
Kura 5	Guraza	Near Domawa	E008 ⁰ 27'46.9"	N11 ⁰ 45'56.8"
Kura 6	Bugau	Near Dauni	E008 ⁰ 28'14.3"	N11 ⁰ 44'27.5"
Kura 7	Domawa	Near Guraza	E008 ⁰ 27'54.7"	N11 ⁰ 45'58.1"
Kura 8	Kosawa	Ruga near gidan Sarki	E008 ⁰ 27'28.3"	N11 ⁰ 46'22.3"
Kura 9	Kadani	Near Mudawa	E008 ⁰ 27'20.9"	N11 ⁰ 44'88.9"
Kura 10	Fegin Malu	Near Kadirawa	E008 ⁰ 29'23.3"	N11 ⁰ 46'26.0"

Source: *Fieldwork*, 2022

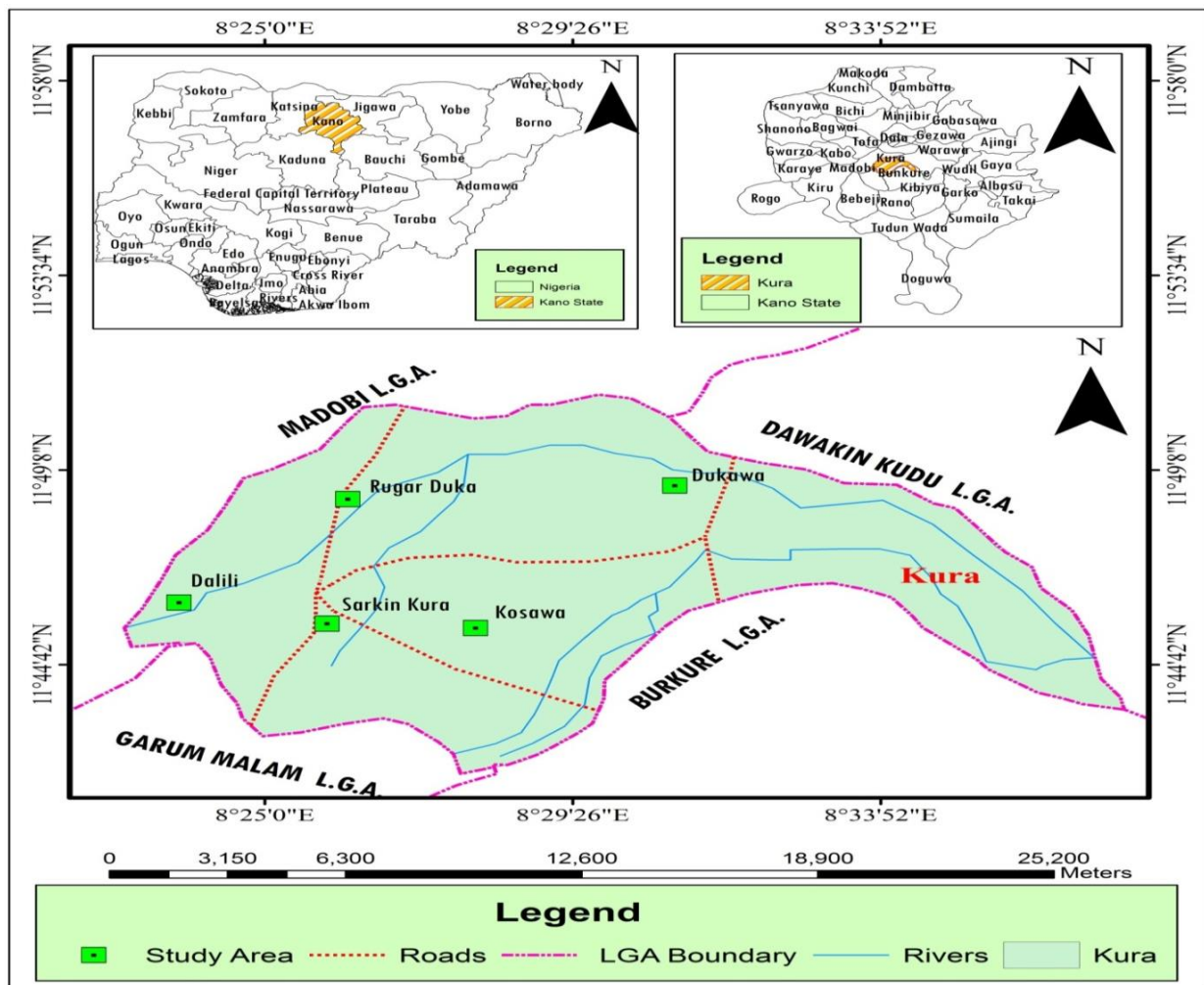


Fig. 1: Map of Kura Local Government Area, Kano State

The climate of the study area is part of the Hot Dry Tropical Climate obtained in Northern Nigeria, generally characterized by warm rainy season and cool/hot dry season. The rainfall pattern of Kano State is characterized by only four wet months, (June-September). However, the first rain is usually recorded in early May. The temperature regime is warm to hot almost throughout the year, even though there is a slightly cool period between November and February which is referred to as the Harmattan (Olofin, 1987). The vegetation of the study is part of the open savannah woodlands of Northern Nigeria. The savannah is used to describe areas within the tropics under grass or grass with trees. But the vegetation pattern has been changed considerably due to human activities such as frequent bush burning, farm clearing, and tree cutting for fuel wood and over grazing. The study area is part of Kano Closed Settled Zone lying on the portion of a dissected pene-plain development on the crystalline pre-Cambrian rocks of the Basement complex. The area is part of Kano-Zaria plains a vast almost flat pene - plain area, which extended almost continuously from Sokoto to Lake Chad. Soil in the area consists of young alluvial soils which are strongly layered in the lower parts of the profile. The dominant texture is loamy sand, although very sandy or sandy loam layers are often present. The drainage system of the study is part of the general drainage of the Kano



river. It is directed to the Kano and the Shimar River. The later River ultimately joins the former, after which it is called Hadejia system.

The study area is part of the Kano River Project Area, which is intensively cropped. The main crops grown on the well-drained soils are sorghum, millet, rice, maize, groundnuts, vegetables and cowpeas. Mixed cropping is generally practiced. Inter-planting of millet and groundnuts or millet and sorghum.

RESULTS AND DISCUSSION

Table 1: Sex Characteristics among respondents in Kura LGA

			Sex		Total
			Male	Female	
Location	Karfi	F	36	4	40
		%	90.0	10.0	100.0
	Imawa	F	39	1	40
		%	97.5	2.5	100.0
	Gajingiri	F	38	2	40
		%	95.0	5.0	100.0
	Kura	F	38	2	40
		%	95.0	5.0	100.0
	Guraza	F	36	4	40
		%	90.0	10.0	100.0
	Bugau	F	38	2	40
		%	95.0	5.0	100.0
	Domawa	F	40	0	40
		%	100.0	0.0	100.0
	KKosawa	F	38	2	40
		%	95.0	5.0	100.0
	KKadani	F	36	4	40
		%	90.0	10.0	100.0
	FeginMalu	F	34	6	40
		%	85.0	15.0	100.0
Total	F	373	27	400	
	%	93.3	6.8	100.0	

Source: *Fieldwork, 2022*

Looking at the gender characteristics of respondents in the 10 political wards in Kura Local Government Area, there is great disparity in terms of participation in agriculture between the gender groups (93.30% male versus 6.80% female). For example in Domawa, 100% of the respondents that participated in the survey were male. Similarly, more than 90% of the respondents across eight political wards were male. However, the study revealed that it was



only in Fegin Malu that 15% of the respondents were female. This shows a great gender imbalance in terms of participation in agricultural activities in the local government area. This could be attributed to the culture and religion of the respondents (being Hausa - Muslims), the female gender were traditionally given charge of domestic affairs and mostly do their farm products processing in their compounds. Almost all their needs were shouldered by their fathers, husbands or brothers as the case may be. The female rice farmers respondents were few because they mostly stay indoors and not easily accessible. This finding corroborate other studies that indicates that gender disparity cuts across virtually every aspect of human endeavour including agricultural production. According to Haruna, 2013 page 371) in Kura LGA 'most of the women who work on the farm are the old women, the widowed and young unmarried girls, the young married women and women of child producing age usually practice farming by proxy delegating their husbands or brothers to manage their farms; most of the women engage in food processing in their homes'.

Table 2: Age Characteristics among respondents in Kura LGA

			Age groups in years				Total
			21-30	31-40	41-50	51 and Above	
Location	Karfi	F	4	18	15	3	40
		%	10.0	45.0	37.5	7.5	100.0
	Imawa	F	16	15	9	0	40
		%	40.0	37.5	22.5	0.0	100.0
	Gajingiri	F	10	11	12	7	40
		%	25.0	27.5	30.0	17.5	100.0
	Kura	F	9	16	15	0	40
		%	22.5	40.0	37.5	0.0	100.0
	Guraza	F	10	15	13	2	40
		%	25.0	37.5	32.5	5.0	100.0
	Bugau	F	13	14	13	0	40
		%	32.5	35.0	32.5	0.0	100.0
	Domawa	F	14	16	8	2	40
		%	35.0	40.0	20.0	5.0	100.0
	KKosawa	F	0	16	19	5	40
		%	0.0	40.0	47.5	12.5	100.0
	KKadanii	F	0	15	22	3	40
		%	0.0	37.5	55.0	7.5	100.0
	FeginMalu	F	0	6	21	13	40
		%	0.0	15.0	52.5	32.5	100.0
Total		F	76	142	147	35	400
		%	19.0	35.5	36.8	8.8	100.0

Source: *Fieldwork, 2022*



From the analysis of Age Characteristics among respondents in Kura LGA, the most active age group that actively participate in agricultural activities were the age groups of 41-50 years (36.8%) and the age groups of 31-40 years (35.5%) of the total respondents in the study area. Although, the age groups of 21-30 years have participated in some wards in the local government area, Kosawa, Kadani and Fegin Malu recorded (0%) participation in the age groups of 21-30 years. While the age group of 51 years and above recorded the least participation of (8.8%) of the total respondents in the study area; the elderly people are usually passive and mostly supervise the activities more often. This results corroborate with other studies across the globe that shows greater participation of youths in active agriculture. Example according to Halliru et al 'majority (79.3%) of the sampled farmers are within the active age bracket of 31–50 years; the modal age bracket or group of farmers between 21–50 years according to [Falola, A and Achem, B. A. in Halliru *et al*] are considered to be active/productive age in farming activities. Participation of youth in agriculture in Nigeria is due to the high level of agricultural apathy by the youth as suggested in the studies on youths' participation in agriculture in Nigeria conducted by [Adekunle, et al in Halliru *et al*]. This result corroborated the findings of [Ikpe in Halliru *et al*] on adaptation strategies to climate change among grain farmers in Goronyo LGA of Sokoto State which showed that people within the age bracket of 31–50 years are active in farming activities in the area.

Table 3: Marital status among respondents in Kura LGA

			Marital				Total
			Single	Married	Widowed	Divorced	
Location	Karfi	F	3	37	0	0	40
		%	7.5	92.5	0.0	0.0	100.0
	Imawa	F	2	33	4	1	40
		%	5.0	82.5	10.0	2.5	100.0
	Gajingiri	F	2	33	4	1	40
		%	5.0	82.5	10.0	2.5	100.0
	Kura	F	4	32	3	1	40
		%	10.0	80.0	7.5	2.5	100.0
	Guraza	F	0	34	5	1	40
		%	0.0	85.0	12.5	2.5	100.0
	Bugau	F	4	33	3	0	40
		%	10.0	82.5	7.5	0.0	100.0
	Domawa	F	2	33	4	1	40
		%	5.0	82.5	10.0	2.5	100.0
	Kosawa	F	3	34	2	1	40
		%	7.5	85.0	5.0	2.5	100.0
	Kadani	F	1	35	3	1	40
		%	2.5	87.5	7.5	2.5	100.0
	FeginMalu	F	2	38	0	0	40
		%	5.0	95.0	0.0	0.0	100.0
Total	F	23	342	28	7	400	
	%	5.8	85.5	7.0	1.8	100.0	

Source: *Fieldwork, 2022*



From table 3 above, greater percentages of the total respondents at the time of the survey were married (85.5%), widowed (7%), single (5.8%), and divorced (1.8%). The probable explanations for the greater participation of married people in agriculture (85.5%) might be due to the fact that married people have a lot of family responsibilities to cater for, ranging from feeding, medical bills, education among others; thus, their active participation is very fundamental. The single farmers constitute only 5.8% of the respondents which indicate low participation of young unmarried youths in rice cultivation in the study area.

The results in table 3 when compared with table 2 shows a clear positive relationship between age and marital status. It indicate that there is a prevalence of early marriage as compared to other parts of the country. Youths of age range between 21 - 30 (only 19%) are single (5.8%), some of this category more often do not own farmlands but serve as labourers in the rice fields.

Table 4: Literacy level of respondents in Kura LGA

			Level of education				Total
			Primary	Secondary	Tertiary	Others	
Location	Karfi	F	8	17	10	5	40
		%	20.0	42.5	25.0	12.5	100.0
	Imawa	F	13	13	9	5	40
		%	32.5	32.5	22.5	12.5	100.0
	Gajingiri	F	11	18	5	6	40
		%	27.5	45.0	12.5	15.0	100.0
	Kura	F	11	16	9	4	40
		%	27.5	40.0	22.5	10.0	100.0
	Guraza	F	13	14	8	5	40
		%	32.5	35.0	20.0	12.5	100.0
	Bugau	F	9	17	8	6	40
		%	22.5	42.5	20.0	15.0	100.0
	Domawa	F	9	14	10	7	40
		%	22.5	35.0	25.0	17.5	100.0
	KKosawa	F	9	16	7	8	40
		%	22.5	40.0	17.5	20.0	100.0
	KKadani	F	13	17	6	4	40
		%	32.5	42.5	15.0	10.0	100.0
	FeginMalu	F	9	15	8	8	40
		%	22.5	37.5	20.0	20.0	100.0
Total	F	105	157	80	58	400	
	%	26.3	39.3	20.0	14.5	100.0	

Source: *Fieldwork, 2022*



From table 4, the literacy level of respondents in Kura LGA revealed that there is low literacy level in the area. The highest percentage of the respondents 39.3% attained only secondary school education as their highest educational qualification. However, only 20% attained tertiary education which could be Diploma, NCE, Degree or Post Graduate educational status. This could be attributed to the fact that the availability of job opportunities in the rice farming (both rainfed and irrigated) attract the youths to venture into the agricultural engagement immediately after completing their secondary education thereby hindering them from furthering education to tertiary level. People in the Kura LGA community consider the economic gain in the rice farming more lucrative and reliable than the white collar jobs. Karfi and Domawa wards have the highest percentage of respondents with tertiary education with 25% respectively. While Gajingiri has the highest percentage (45%) of respondents with secondary school level of education. Imawa, Guraza and Kadani have the highest percentage (32.3%) of respondents with only primary level of education.

Table 5: Duration of stay in the area among respondents in Kura LGA

			For how long have you being living in the area				Total
			Less than 10years	11-20 years	21-30 years	31 and above	
Location	Karfi	F	2	4	10	24	40
		%	5.0	10.0	25.0	60.0	100.0
	Imawa	F	2	6	17	15	40
		%	5.0	15.0	42.5	37.5	100.0
	Gajingiri	F	3	9	16	12	40
		%	7.5	22.5	40.0	30.0	100.0
	Kura	F	2	3	16	19	40
		%	5.0	7.5	40.0	47.5	100.0
	Guraza	F	3	9	14	14	40
		%	7.5	22.5	35.0	35.0	100.0
	Bugau	F	1	2	18	19	40
		%	2.5	5.0	45.0	47.5	100.0
	Domawa	F	3	6	19	12	40
		%	7.5	15.0	47.5	30.0	100.0
	Kosawa	F	4	3	15	18	40
		%	10.0	7.5	37.5	45.0	100.0
	Kadani	F	3	7	16	14	40
		%	7.5	17.5	40.0	35.0	100.0
	FeginMalu	F	8	4	11	17	40
		%	20.0	10.0	27.5	42.5	100.0
Total		F	31	53	152	164	400
		%	7.8	13.3	38.0	41.0	100.0

Source: *Fieldwork*, 2022



The analysis of duration of stay among respondents in Kura LGA revealed that majority of the respondents of 31 years and above duration of stay for the entire study area was 41% while the overall respondents of 21 years to 30 years was 38%. This shows that majority of the respondents are the original inhabitants of the area with a long history of duration of stay. Only 7.8% stays for less than 10 years, usually the non indigenes in most farming communities were few. This could be attributed to the fact that the migrants prefer to live in areas with white collar jobs, industrial / private companies and business opportunities more prominent in the urban Kano. Karfi has the highest of (60%) of respondents that stayed in the area for 31 years and above. This is an indication that they have a long history of participation in agriculture in the study area. Kura, Bugau and Kosawa have the duration of stay of 45% respectively.

Table 6: House hold size among respondents in Kura LGA

		House hold size					Total
		1-5	6-10	11-15	16 and above		
Location	Karfi	F	12	16	9	3	40
		%	30.0	40.0	22.5	7.5	100.0
	Imawa	F	13	21	3	3	40
		%	32.5	52.5	7.5	7.5	100.0
	Gajingiri	F	13	19	4	4	40
		%	32.5	47.5	10.0	10.0	100.0
	Kura	F	12	18	6	4	40
		%	30.0	45.0	15.0	10.0	100.0
	Guraza	F	8	26	4	2	40
		%	20.0	65.0	10.0	5.0	100.0
	Bugau	F	16	16	5	3	40
		%	40.0	40.0	12.5	7.5	100.0
	Domawa	F	13	25	1	1	40
		%	32.5	62.5	2.5	2.5	100.0
	Kosawa	F	12	13	6	9	40
		%	30.0	32.5	15.0	22.5	100.0
	Kadani	F	11	22	4	3	40
		%	27.5	55.0	10.0	7.5	100.0
	FeginMalu	F	7	20	6	7	40
		%	17.5	50.0	15.0	17.5	100.0
Total		F	117	196	48	39	400
		%	29.3	49.0	12.0	9.8	100.0

Source: *Fieldwork*, 2022



The results of the analysis of house hold size among respondents in Kura LGA revealed that those with range of 6-10 household size accounted for 49%, while the overall house hold size of 1-5 persons accounted for only 29.3% and the house size of 16 and above accounted for only 9.8% of the total house hold size. Guraza has the largest house hold size response of 65% which falls within the range of 6-10 persons, followed closely by Domawa with 62.5%. Other significant clusters with high concentration include Imawa 52.5%, and Kadani 55%. This is an indication that majority of the respondents are from extended family which played an important role when it comes to participation in agricultural activities in the rural communities.

This result could be tied to the age group and literacy level of the respondents which indicate a strong proportional relationship. The age group with highest participation {41-50 years (36.8%) and the age groups of 31-40 years (35.5%)}. Therefore, those with largest family size are those with 51 years and above. Even within those with the same economic status, literacy level tend to have impact on family size (the higher the literacy level, the smaller the family size and vice versa).

Table 7: Farmland Size among respondents in Kura LGA

			Size of farmland (ha)				Total
			Less than 5	6-10	11-15	16 and above	
Location	Karfi	F	25	9	3	3	40
		%	62.5	22.5	7.5	7.5	100.0
	Imawa	F	15	19	3	3	40
		%	37.5	47.5	7.5	7.5	100.0
	Gajingiri	F	14	20	4	2	40
		%	35.0	50.0	10.0	5.0	100.0
	Kura	F	16	16	3	5	40
		%	40.0	40.0	7.5	12.5	100.0
	Guraza	F	15	21	3	1	40
		%	37.5	52.5	7.5	2.5	100.0
	Bugau	F	20	16	3	1	40
		%	50.0	40.0	7.5	2.5	100.0
	Domawa	F	13	22	4	1	40
		%	32.5	55.0	10.0	2.5	100.0
	Kosawa	F	19	13	3	5	40
		%	47.5	32.5	7.5	12.5	100.0
	Kadani	F	14	21	3	2	40
		%	35.0	52.5	7.5	5.0	100.0
	FeginMalu	F	16	14	4	6	40
		%	40.0	35.0	10.0	15.0	100.0
Total		F	167	171	33	29	400
		%	41.8	42.8	8.3	7.3	100.0

Source: *Fieldwork*, 2022



From the results of the analysis of farmland size among respondents in Kura LGA, although farmers tried all their efforts to intensify their agricultural activities towards commercialization of their farm outputs, the existing data revealed that the agricultural activities (based on farmland size) among the local government farming community is mostly subsistence in nature. Generally speaking, majority of the respondents with size of farm land 6-10 hectares accounted for 42.8%, it is closely followed by those with farmland size of less than 5 hectares (41.8%) of the total farm land in the study area. According to Afolami, C. A., Obayelu, A. E., Agbonlahor, M. U. & Lawal-Adebawale, O. A. (2012 page 233) 'the agricultural production landscape in Nigeria is dominated by small-scale, resource-poor farmers, who produce over 90% of the food consumed in the country in small (<2ha) dispersed holdings'. They are the major producers (though with small farm holdings). Only 7.8% have farmlands with 16 and above hectares of land. In Karfi area, majority of the respondents (62.5%) cultivate less than 5 hectares of land, while in Bugau 50% of the respondents cultivated less than 5 hectares of land. However, the size of farm land of 6-10 hectares, Domawa accounted for 55%, Guraza 52.5%. This call for the need to expand the irrigation project of the Kano River Irrigation Project (KRIP), so that the existing farmers could increase their farmland sizes (acreage), and new farmers be integrated.

Table 8: Ways of Land ownership (acquisition) among respondents in Kura LGA

		Means of acquiring the land (Land Tenure system)					Total
		Inheritance	Purchase	Lease	Inheritance and Purchase		
Location	Karfi	F	18	10	12	0	40
		%	45.0	25.0	30.0	0.0	100.0
	Imawa	F	18	15	5	2	40
		%	45.0	37.5	12.5	5.0	100.0
	Gajingiri	F	18	16	4	2	40
		%	45.0	40.0	10.0	5.0	100.0
	Kura	F	24	13	3	0	40
		%	60.0	32.5	7.5	0.0	100.0
	Guraza	F	18	15	5	2	40
		%	45.0	37.5	12.5	5.0	100.0
	Bugau	F	16	18	6	0	40
		%	40.0	45.0	15.0	0.0	100.0
	Domawa	F	19	16	5	0	40
		%	47.5	40.0	12.5	0.0	100.0
	Kosawa	F	21	12	7	0	40
		%	52.5	30.0	17.5	0.0	100.0
	Kadani	F	24	14	2	0	40
		%	60.0	35.0	5.0	0.0	100.0
	FeginMalu	F	27	7	4	2	40
		%	67.5	17.5	10.0	5.0	100.0
Total	F	203	136	53	8	400	
	%	50.8	34.0	13.3	2.0	100.0	

Source: *Fieldwork, 2022*



In terms of land acquisition and ownership, the most common means of acquiring land for agriculture is by inheritance. Majority of the respondents 50.8% acquire their farmland by inheritance. It is followed by 34% acquisition through purchase. Only 2% of the land is acquired through inheritance and purchase, whereas 13.3% have gotten their farmlands through leasing. On ward level, about 67.5% of the land acquired in Fegin Malu is by inheritance. While the land acquired in Kura and Kadani by inheritance is 60% respectively. This indicates that the most common means of acquiring land in the study area is by inheritance, which is the most common way of land ownership in rural communities in Nigeria.

Correlating this result with the table on duration of stay, almost 79% of the respondents were indigenes (31 years and above duration of stay for the entire study area was 41% plus those with 21 years to 30 years was 38%). This is why majority acquire their farmlands through inheritance, which also have influence on the farmland size due to land fragmentation during the inheritance process.

Table 9: Estimated annual harvest produced among respondents in Kura LGA

			Bags of rice produced				Total
			Less than 20 bags	21-39 bags	40 - 59 bags	60 bags and above	
Location	Karfi	F	9	10	8	13	40
		%	22.5	25.0	20.0	32.5	100.0
	Imawa	F	5	20	7	8	40
		%	12.5	50.0	17.5	20.0	100.0
	Gajingiri	F	5	22	8	5	40
		%	12.5	55.0	20.0	12.5	100.0
	Kura	F	4	17	6	13	40
		%	10.0	42.5	15.0	32.5	100.0
	Guraza	F	5	20	8	7	40
		%	12.5	50.0	20.0	17.5	100.0
	Bugau	F	7	22	5	6	40
		%	17.5	55.0	12.5	15.0	100.0
	Domawa	F	8	25	2	5	40
		%	20.0	62.5	5.0	12.5	100.0
	Kosawa	F	5	16	9	10	40
		%	12.5	40.0	22.5	25.0	100.0
	Kadani	F	4	23	5	8	40
		%	10.0	57.5	12.5	20.0	100.0
	FeginMalu	F	9	14	9	8	40
		%	22.5	35.0	22.5	20.0	100.0
Total		F	61	189	67	83	400
		%	15.3	47.3	16.8	20.8	100.0

Source: *Fieldwork, 2022*



The estimated annual harvest produced has shown a significant turn over of bags of rice produced by the respondent. Majority of the respondents (47.3%) in the study area produced 21-39 bags of rice per annum, whereas only 20.8% of the respondents produced 60 bags of rice and above per annum. This is in tandem with the farmland size. The production of bags of rice per annum goes hand in hand with the farmland size, the higher the farmland size, the higher the number of bags of rice produced and vice versa. At ward level, Kura and Karfi seem to produced the highest number of bags (60 bags and above) with 32.% each. Karfi and Fegin Malu also recorded the highest percentage of those farmers producing less than 20 bags per annum with 22.5% each. Many factors could be attributed to the higher return in some areas like the soils, farmland size and farm input.

Table 10: Estimated Net Income of respondents in Kura LGA

			Net of Income (N)				Total
			Less than N50,000	N 51,000- N100,000	N101,000- N150,000	N150,000 and above	
Location	Karfi	F	8	11	10	11	40
		%	20.0	27.5	25.0	27.5	100.0
	Imawa	F	3	17	10	10	40
		%	7.5	42.5	25.0	25.0	100.0
	Gajingiri	F	2	16	15	7	40
		%	5.0	40.0	37.5	17.5	100.0
	Kura	F	2	12	13	13	40
		%	5.0	30.0	32.5	32.5	100.0
	Guraza	F	4	18	7	11	40
		%	10.0	45.0	17.5	27.5	100.0
	Bugau	F	3	17	14	6	40
		%	7.5	42.5	35.0	15.0	100.0
	Domawa	F	4	20	11	5	40
		%	10.0	50.0	27.5	12.5	100.0
	Kosawa	F	3	9	17	11	40
		%	7.5	22.5	42.5	27.5	100.0
	Kadani	F	1	18	11	10	40
		%	2.5	45.0	27.5	25.0	100.0
	FeginMalu	F	4	13	7	16	40
		%	10.0	32.5	17.5	40.0	100.0
Total		F	34	151	115	100	400
		%	8.5	37.8	28.8	25.0	100.0

Source: *Fieldwork, 2022*

The estimated net income of the respondents revealed that there is positive correlation between the number of bags of rice produced and the net income of the respondents. This is because 37.8% of the respondents have net income of N51,000-100,000, 28.8% of the respondents have a net income of N101,000-N150,000. This shows a direct relationship between the size of farmlands, the bags of rice produced and the net income generated by the respondents. This means that the rice farmers are making a good return from their investment



as evident by the profit margin. There is need for completion of the KRIP project to 100% so as to enhance food production, job opportunities and wealth generation in the area.

Table 11: Membership of Cooperative society among respondents in Kura LGA

			Membership of Cooperative society		Total
			Yes	No	
Location	Karfi	F	13	27	40
		%	32.5	67.5	100.0
	Imawa	F	8	32	40
		%	20.0	80.0	100.0
	Gajingiri	F	10	30	40
		%	25.0	75.0	100.0
	Kura	F	10	30	40
		%	25.0	75.0	100.0
	Guraza	F	11	29	40
		%	27.5	72.5	100.0
	Bugau	F	6	34	40
		%	15.0	85.0	100.0
	Domawa	F	4	36	40
		%	10.0	90.0	100.0
	Kosawa	F	14	26	40
		%	35.0	65.0	100.0
	Kadani	F	8	32	40
		%	20.0	80.0	100.0
	FeginMalu	F	8	32	40
		%	20.0	80.0	100.0
Total	F	92	308	400	
	%	23.0	77.0	100.0	

Source: *Fieldwork, 2022*

The statistical analysis indicated that rice farmers registration and active participation in cooperative society is poor. Majority of the respondents (77%) do not participate, while only 23% of them participate in the Cooperative Society. However, respondents participation in cooperative society depends largely on their level of literacy. For example Karfi with secondary level of literacy of 42.5% have 32.5% of its respondents with membership to cooperative society while Kosawa with secondary school level of literacy of 40% have 35% of its respondents as members of cooperative society. However, Domawa with 35% Secondary education level literacy (the lowest) have the highest 90% of non participation in any cooperative society, while Imawa, Fegin Malu and Kadani have 80% of their respondents as non participants in any cooperative society. This means majority does not know the significance and benefits derivable from the farmers' cooperative Society.

**Table 12: Visit by extension workers among respondents in Kura LGA**

			Visit by extension workers				Total
			Once a year	Twice a year	Quarterly in a year	Never	
Location	Karfi	F	4	11	3	22	40
		%	10.0	27.5	7.5	55.0	100.0
	Imawa	F	6	6	5	23	40
		%	15.0	15.0	12.5	57.5	100.0
	Gajingiri	F	3	10	6	21	40
		%	7.5	25.0	15.0	52.5	100.0
	Kura	F	5	3	5	27	40
		%	12.5	7.5	12.5	67.5	100.0
	Guraza	F	4	8	8	20	40
		%	10.0	20.0	20.0	50.0	100.0
	Bugau	F	4	5	5	26	40
		%	10.0	12.5	12.5	65.0	100.0
	Domawa	F	1	4	8	27	40
		%	2.5	10.0	20.0	67.5	100.0
	Kosawa	F	5	9	5	21	40
		%	12.5	22.5	12.5	52.5	100.0
	Kadani	F	5	3	7	25	40
		%	12.5	7.5	17.5	62.5	100.0
	FeginMalu	F	15	2	3	20	40
		%	37.5	5.0	7.5	50.0	100.0
Total		F	52	61	55	232	400
		%	13.0	15.3	13.7	58.0	100.0

Source: *Fieldwork, 2022*

The results of the data analysis, it is very evident that there is very low visit by agricultural extension workers in the study area. Majority of the respondents (58%) indicated that extension workers have never visited their locality for any advice. 15.3% reported that extension workers visited them only twice in a year, whereas 13.7% support that the visit by extension workers is about four times in a year. Only 13% of the respondents reported that the visit use to be only once in a year. Therefore there is a serious need for more efforts to intensify the visitation of extension workers to render services to the farmers for better agricultural practice among rice farmers in Kura Local Government Area. At ward level, Fegin Malu received the highest percentage of 37.5% of lowest visitation frequency of agricultural extension workers once in a year. Guraza and Domawa received the highest frequency of visitation by the extension workers four (4) times in a year with 20% each. The probable reason could be proximity (location of KIRP project office within their catchment area) while Fegin Malu recorded the lowest frequency of quarterly visitation by extension workers (7.5%).

**Table 13: Types of communication devices use by respondents in Kura LGA**

			Types of communication devices use				Total
			Television set	Radio set	Handset	Satellite	
Location	Karfi	F	3	21	8	8	40
		%	7.5	52.5	20.0	20.0	100.0
	Imawa	F	3	16	16	5	40
		%	7.5	40.0	40.0	12.5	100.0
	Gajingiri	F	2	13	18	7	40
		%	5.0	32.5	45.0	17.5	100.0
	Kura	F	4	15	18	3	40
		%	10.0	37.5	45.0	7.5	100.0
	Guraza	F	4	18	9	9	40
		%	10.0	45.0	22.5	22.5	100.0
	Bugau	F	2	13	21	4	40
		%	5.0	32.5	52.5	10.0	100.0
	Domawa	F	2	16	17	5	40
		%	5.0	40.0	42.5	12.5	100.0
	Kosawa	F	5	11	20	4	40
		%	12.5	27.5	50.0	10.0	100.0
	Kadani	F	3	16	16	5	40
		%	7.5	40.0	40.0	12.5	100.0
	FeginMalu	F	3	16	18	3	40
		%	7.5	40.0	45.0	7.5	100.0
Total		F	31	155	161	53	400
		%	7.8	38.8	40.3	13.3	100.0

Source: *Fieldwork, 2022*

Handset is the most common type of communication device used by the rice farmers (40.3%), it is closely followed by radio (38.8%). This is because handset allows for direct person to person communication with ease and convenience. It allows communication between farmer to farmer, farmer to extension worker, farmer to project managers, farmer to labourers, farmer to product marketers (both input and output) in forward and reverse case. The use of smart android phones allow for sending video, audio messages, still picture of different agricultural related clips showcasing different stages like methods like traditional and modern methods of land preparation, planting, weeding, pest and disease control and treatment, harvesting, storage and marketing strategies. it also allows for real time communication between farmer and other stakeholders like phone in programmes in radio and television stations. It has really brought a revolution and value addition to the rice production in the study area. Radio communication also remain a very vital way of communication to rice farmers in the study area. Currently, there is a radio station exclusively for farmers (Manoma Radio, Kano on frequency 549 AM). This radio station serve as a voice of the farmers. So many enlightenment and interactive programmes takes place in that station. Other radio stations also have some designated programmes on agricultural activities which are very useful to the rice farmers particularly state owned stations such as Radio Kano AM/FM 1&2 (89.3) and ARTV FM (101.1). Traditionally, the Hausa-Fulani are usually known to have



cultural attachment or affinity to radio. The television set and satellite are not very common means to farmers communication (7.8% and 13.3% respectively) because of their user unfriendliness (cost, power need, size, sophistication, non reliability and other related reasons). Even at ward level, the result did not show wide variation among the wards, for example in Karfi about 52.5% of the respondents used radio as a type of communication device. In Kosawa 50% of the respondent used handset as a type of communication device while about 45% of the respondent in Fegin Malu, Kura and Gajingiri used handset as a type of communication device. This may partly be the reason for low physical visitation by the extension workers as in table 13 above. This corroborate the concept of 'the death of distance' advocated by Frances Cairncross (2001) due to adoption of modern means of communication that are virtual and remotely sensed, that are changing our lives. The accessibility to such modern ways of communication by the common man is aiding in globalization among the common man in Nigeria. According to Nigeria Communication Commission (NCC), 'In Nigeria, the number of active mobile subscriptions reached 195.4 million in December, 2021, with internet subscribers exceeding 141 million and a broadband penetration of 40.88%' (NCC, 2022 Punch newspaper online version paragraph 7). having access to the telephone Global System for Mobile (GSM) communications mobile network providers especially due to availability of and competition among of different telecommunication companies (such as MTN, Airtel, Globacom, 9Mobile and so on). The affordability of handset also brought a revolution due to competition and China's involvement in the mass production of affordable electronic devices, spare parts and services.

Table 14: Information derived from communication devices by respondents in Kura LGA

			Information derived from communication devices							Total
			New varieties of seeds	availability of fertilizer	Packaging and processing methods	Cultivation methods	Loan Accessibility	Farming assistance	NO	
Location	Karfi	F	12	13	8	5	0	1	1	40
		%	30.0	32.5	20.0	12.5	0.0	2.5	2.5	100.0
	Imawa	F	7	14	7	9	2	1	0	40
		%	17.5	35.0	17.5	22.5	5.0	2.5	0.0	100.0
	Gajingiri	F	6	18	7	7	2	0	0	40
		%	15.0	45.0	17.5	17.5	5.0	0.0	0.0	100.0
	Kura	F	8	10	9	7	3	2	1	40
		%	20.0	25.0	22.5	17.5	7.5	5.0	2.5	100.0
	Guraza	F	5	12	11	9	2	1	0	40
		%	12.5	30.0	27.5	22.5	5.0	2.5	0.0	100.0
	Bugau	F	5	14	9	9	3	0	0	40
		%	12.5	35.0	22.5	22.5	7.5	0.0	0.0	100.0
	Domawa	F	3	12	11	10	3	1	0	40
		%	7.5	30.0	27.5	25.0	7.5	2.5	0.0	100.0
	Kosawa	F	10	14	7	6	2	1	0	40
		%	25.0	35.0	17.5	15.0	5.0	2.5	0.0	100.0



Kadani	F	3	11	12	9	3	1	1	40
	%	7.5	27.5	30.0	22.5	7.5	2.5	2.5	100.0
Fegin Malu	F	5	9	12	5	7	1	1	40
	%	12.5	22.5	30.0	12.5	17.5	2.5	2.5	100.0
Total	F	64	127	93	76	27	9	4	400
	%	16.0	31.8	23.3	19.0	6.8	2.3	1.0	100.0

Source: *Fieldwork, 2022*

The type of Information derived from the use of communication devices by respondents in Kura LGA varied. However, the most frequent information derived by the respondent is the availability of fertilizer with the highest respondents of 45% from Gajingiri. Imawa, Kosawa and Bugau have 35% respectively. However, the overall percentage of information derived by the respondents in the study area revealed that 31.8% of the respondents derived information on the availability of fertilizer, while 1.0% did not derive any farming related information from the communication devices, only 2.3% derived information on farming assistance which recorded the least percentage, because there is little material assistance to farmers nowadays. In most cases, the rice farmers are on their own, whatever they want to do should be within their confined capability, because there is less or no assistance from government. There should be assistance from government to the rice farmers so that an enhanced agricultural productivity could be enhanced, and their livelihoods upgraded.

Table 15: Receipt of Formal farming training among respondents in Kura LGA

		Formal farming training		Total	
		Yes	No		
Location	Karfi	F	8	32	40
		%	20.0	80.0	100.0
	Imawa	F	8	32	40
		%	20.0	80.0	100.0
	Gajingiri	F	6	34	40
		%	15.0	85.0	100.0
	Kura	F	6	34	40
		%	15.0	85.0	100.0
	Guraza	F	10	30	40
		%	25.0	75.0	100.0
	Bugau	F	4	36	40
		%	10.0	90.0	100.0
	Domawa	F	5	35	40
		%	12.5	87.5	100.0
	Kosawa	F	5	35	40
		%	12.5	87.5	100.0
	Kadani	F	5	35	40
		%	12.5	87.5	100.0
	FeginMalu	F	8	32	40
		%	20.0	80.0	100.0
Total		F	65	335	400
		%	16.3	83.8	100.0

Source: *Fieldwork, 2022*



Statistics have shown that there are limited opportunities of access to formal farming training among respondents in Kura LGA. Looking at the data, 83.8% of the total respondents had no formal farming training while only 16.3% of the respondents had received formal farming training in the past. Therefore, there is urgent need for organizing formal farming training particularly by the relevant stake holders such as Kano State Agricultural and Rural Development Authority (KNARDA) and Kano State Agricultural Supply Company (KASCO). Guraza recorded the highest percentage of farmers that received formal training (25%) closely followed by Karfi, Imawa and Fegin Malu (20%). The formal training by the agricultural bodies and organizations (both governmental and non-governmental organizations) expose farmers to new methods and techniques of farming at various stages of the activity (from land preparation up to harvesting, marketing and storage levels). There is a strong need to reach out to the farmers and for the farmers to also reach out to the agricultural organizations individually or through their cooperative associations so that the awareness and education of farmers be improved for better results. Such formal trainings could be done physically or through the non contact means (using information and communication technological system).

Table 16: Perception on Importance of Formal farming training among respondents in Kura LGA

		Importance of training				Total	
		Very important	Important	Not important	Undecided		
Location	Karfi	F	6	9	3	22	40
		%	15.0	22.5	7.5	55.0	100.0
	Imawa	F	1	6	4	29	40
		%	2.5	15.0	10.0	72.5	100.0
	Gajingiri	F	2	3	1	34	40
		%	5.0	7.5	2.5	85.0	100.0
	Kura	F	2	5	2	31	40
		%	5.0	12.5	5.0	77.5	100.0
	Guraza	F	5	6	0	29	40
		%	12.5	15.0	0.0	72.5	100.0
	Bugau	F	0	5	5	30	40
		%	0.0	12.5	12.5	75.0	100.0
	Domawa	F	2	6	1	31	40
		%	5.0	15.0	2.5	77.5	100.0
	Kosawa	F	4	4	2	30	40
		%	10.0	10.0	5.0	75.0	100.0
	Kadani	F	1	5	1	33	40
		%	2.5	12.5	2.5	82.5	100.0
	FeginMalu	F	13	5	4	18	40
		%	32.5	12.5	10.0	45.0	100.0
Total		F	36	54	23	287	400
		%	9.0	13.5	5.8	71.8	100.0

Source: *Fieldwork, 2022*



The perception on the importance of formal farming training among rice farmers in Kura Local Government Area indicated that 71.8% of the total respondents were undecided on the issue. This could be tied to their literacy level because the higher the literacy level, the more the enlightenment and knowing the relevance of formal training and vice versa. One will not cherish what he does not know or realize its value, therefore since most of the farmers are of low or below average literacy level. Also, since majority did not received any formal agricultural training, they will not appreciate its importance. However, only 13.5% and 9.0% responded that the formal farming training is important and very important respectively. They seem to be among the few that participated in formal trainings and therefore appreciate its worthiness. This is an indication that there is the need for more enlightenment campaign on importance of the formal farming trainings in the study area and especially the practical benefits of the trainings they could derive from such trainings. Therefore, this result has indicated that there is relationship between receipt of formal farming training and appreciating its importance. among the respondents.

CONCLUSION AND RECOMMENDATIONS

From the foregoing, the demographic characteristics of the rice farmers in Kura LGA have significant impact on their agricultural productivity. The result on duration of stay indicates that majority of the farmers were born and brought up there (indigenes). This is why majority acquire their farmlands through inheritance, which also have influence on the farmland size due to land fragmentation during the inheritance sharing process. With low literacy level, the civility of the farmers is low and therefore need to be improved for easy comprehension and acceptance of new scientific methods of farming. The following recommendations are considered useful:

- ✓ There is need for completion and expansion of the irrigation project of the Kano River Irrigation Project (KRIP), so that the existing farmers could increase their farmland sizes (acreage), and new farmers be integrated.
- ✓ The rice farmers should always be encouraged to further their education through many strategies including awareness campaign and locating a tertiary institution in their area.
- ✓ Creating awareness on the benefits of the membership of farmers cooperative society to enhance participation which would increases their unity and give them better access to agricultural inputs, increase access to knowledge and information sharing and consequently improve their income.
- ✓ There should be assistance from government to the rice farmers so that an enhanced agricultural productivity could be enhanced, and their livelihoods upgraded.
- ✓ There is a strong need to reach out to the farmers and for the farmers to also reach out to the agricultural organizations individually or through their cooperative associations so that the awareness and education of farmers be improved for better results. Such formal trainings could be done physically or through the non contact means (using information and communication technological system).
- ✓ Encourage women participation in rice farming through various incentives.



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