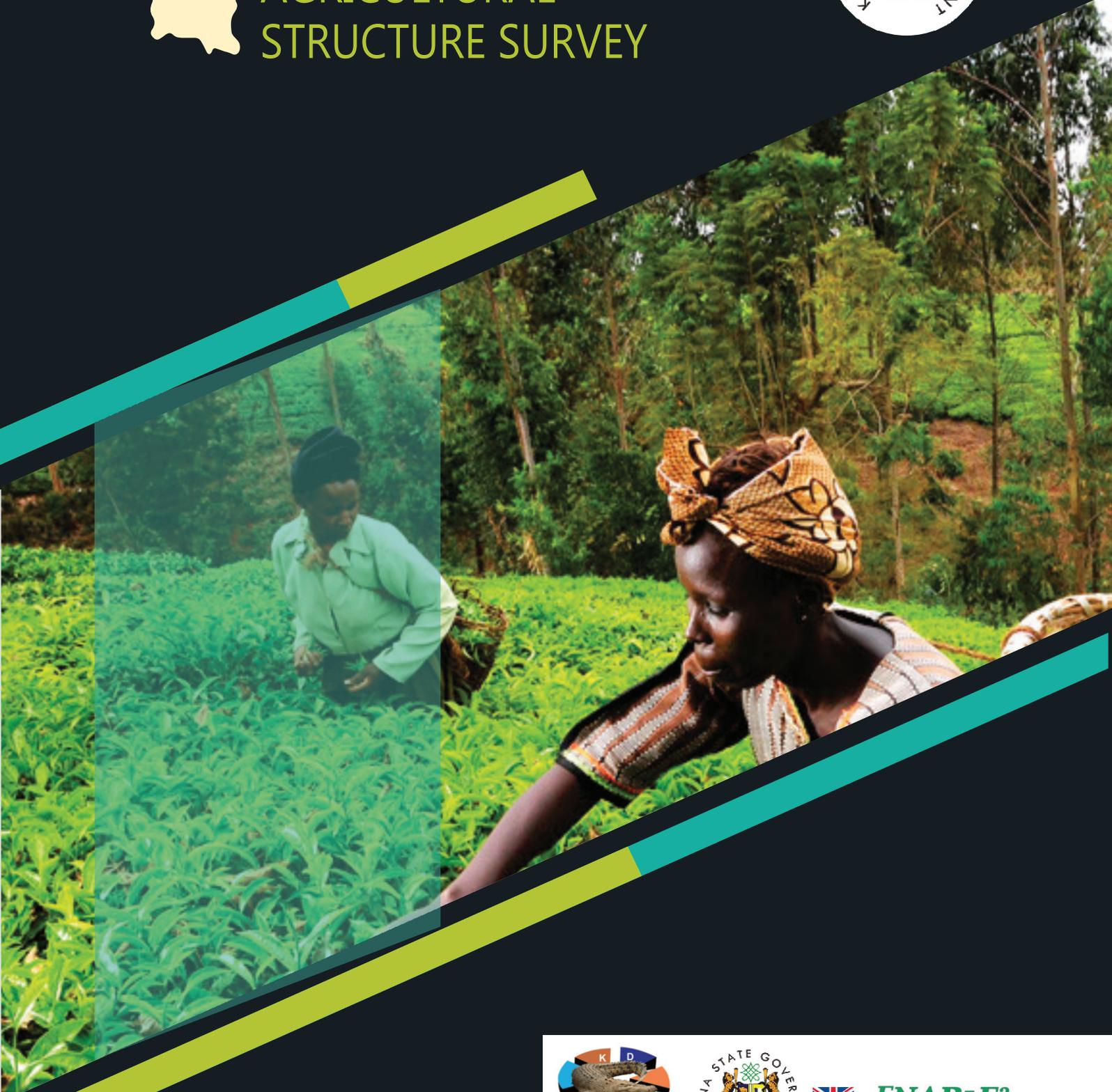




KADUNA STATE AGRICULTURAL STRUCTURE SURVEY



ENABLE²
Enhancing Nigerian Advocacy
for a Better Business Environment)))

About KASS



The Kaduna State Agricultural Structure Survey, KASS aims to provide effective baseline data and information for Government policies as well as private participation in the agricultural sector.

Abbreviation and Acronyms

KASS: Kaduna State Agricultural Structure Survey

KDBS: Kaduna State Bureau of Statistics

DRMP: Data Revolution Master Plan

KDR: Kaduna Data Revolution

KDGHHS: Kaduna State General Household Survey

KDGDP: Kaduna State Gross Domestic Product

ASC: Annual School Census

KADP: Kaduna State Agricultural Development Project

MOAF: Ministry of Agriculture and Forestry

ENABLE2: Enhancing Nigeria Advocacy for a Better Business Environment

LGA: Local Government Area

CADP: Commercial Agricultural Development Project

FADAMA:

KDP: Kaduna Development Plan

EAs: Enumeration Areas

HH: Household

SRS: Simple Random Sampling

PSU: Primary Sampling Units

SSU: Secondary Sampling Units

IT: Information Technology

IBM SPSS: IBM Statistical Package for Social Sciences

Acknowledgement

A hearty word of acknowledgment goes to our focused Governor, His Excellency Mallam Nasir Ahmed EL-Rufai for his tireless effort to the growth of Statistics and indeed evidence based policies in Kaduna State. His declaration for Data Revolution in the State is making Kaduna to regain its greatness and a model for other States in Nigeria, which we commend and appreciate.

I would like to sincerely recognize and appreciate my amiable commissioner, Planning and Budget Commission, Muhammad Sani Abdullahi, the Bridge-builder between KDBS and the Government as well as International Development Partners. His dream and continuous effort is to ensure that KDBS becomes the best and most effective among her contemporaries in Nigeria

I am equally indebted to the able ENABLER 2 for all resourceful support and indeed their consultants who coordinated the standardization of this survey processes. Moreover, I am equally grateful to the stakeholders; MOAF, KADA, NBS, relevant Institutions/Organizations and individuals who collaborated with KDBS towards the conduct and success of KASS. Finally, my earnest gratitude goes to staff of the Bureau, who worked tirelessly on the field in different capacity and technical controllers in the Bureau Headquarter for their rigorous efforts leading to the success of this survey.

I remain greatly grateful to all

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ASMAU KABIR

NURA BALARABE

The absence of any concrete evidence on the status of the Agriculture in the state necessitated this Agriculture Sector Survey by the Kaduna Bureau of Statistics. Given the Government's commitment to jobs, social justice and prosperity, it is critical to understand this important Sector in an attempt to target better, our Agricultural policies, programs and projects to areas of greatest need.

The results of the Survey have been illuminating. It clearly shows that 1,322,226 families are into farming in the State. Maize, Rice and Soybeans from the 2016 cropping seasons were the highest production achieved in the history of Kaduna State. Males participated in agricultural activities more than females and rainy season farming is a common practice. Tomatoes remain the major crop planted during dry season farming. Seed is the major cropping material used during crop production while sole cropping is the main cropping systems used. Also, the survey confirms that Agriculture is the highest employer of labour in the State.

In the conduct of the Survey 2,550 households were visited both in Rural and Urban Areas across all 255 wards in the State, this was indeed no small task.

The current scenario indicates that Kaduna State has started its journey towards food self- sufficiency and commercialization. This information will guide Government in understanding the potentials of the State in terms of creating employment and improving incomes. The findings also reveal some of the agronomic and socio-economic constraints affecting the agricultural sub-sector and such information will guide Government in focusing and prioritizing its development efforts for the sub-sector.

I commend the Kaduna State Bureau of Statistics for successfully conducting this huge exercise which has clearly provided a credible baseline to assess the true situation of Agriculture in Kaduna State as at 2016. The Government is determined to use the result in planning and allocation of resources to the identified critical areas of need.

Thank you.

Muhammad Sani Abdullahi
Commissioner, Planning and Budget Commission
Kaduna State
August 2017



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The Agricultural Structure Survey tends to provide relevant information for effective planning and investment. It provides a source of basic gazette type of agricultural information on all settlements in the state; it also serves as a frame for other future surveys on agriculture.

The overall objective of the survey is to conduct a baseline survey that will provide an effective baseline data and information for Government policies as well as private participation in the agricultural sector.

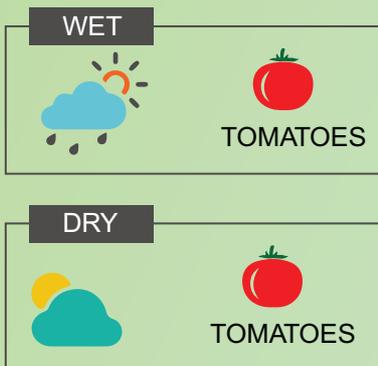
The result showed that more males participated in agricultural activities than females in the state. Married couples are more into agriculture than those who are single. It was

revealed that majority of the farming household heads are between ages 30 to 40 years. The average size of farming households in the State is seven, which reflects the age long African setting of high household size and cheap labour supply.

The Study revealed that crop production is the main occupation among the farming households in the State. Rainy season farming is a common practice in the State and Tomatoes remain the major crop planted during dry season farming. There are 1,322,226 farming households in the State; the result showed that 1,316,937 farming households were into rainy season farming in 2016 compared to 136,189 households who were into dry season farming.

QUICK FACTS

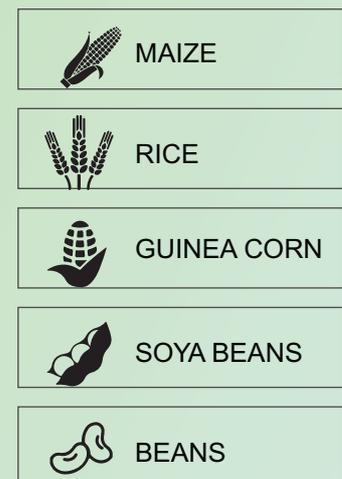
MAJOR CROPS BY SEASON



FARM LAND TYPE



MAJOR CROPS PLANTED



People with secondary school education have a flare for agriculture followed by people with qur'anic education in the State.

81.3 percent of farmers cultivate 0.1 to 5.99 ha of land in the State. 10.6 percent of farmers are members of Farmers' Cooperative / Association.

Five major crops cultivated in the State are Maize, Rice, Guinea Corn, Soya beans and Beans.

Seed is the major cropping material used during crop production. 69.4 percent of farmers used local seed during farming. There are 2,045,506.18 hectares of upland land and 883,717.47 hectare of Lowland.

62.6 percent of lands used for farming activities in the State were inherited land with 21.2 percent purchased land.

The study revealed that 76.1 percent of farmers in the State farm for both home and commercial purposes with 14.8 percent for home consumption only and 5.3 percent for commercial purposes only.

It also revealed that 0.3 percent of farmers adopt the use of irrigation system in farming. Main cropping system used in the State was sole cropping while only 27 percent of farmers engaged in mixed cropping.

85.2 percent of farmers make use of agro-chemical products during farming season. The major agro-chemical product used is Herbicide followed by Insecticide.

The Study shows that farmers spent more time in accessing markets across the State. However, travel distance to market is highest in Kuru LGA (26km), followed by Kubau and Sanga LGAs with 15km each.

The results also show that it takes an average of 25 minutes waiting time to board a motor vehicle to market across the State and 15 minutes to board a motorcycle.

The average time taken by motor vehicle to market through all-weather road was 22.39 minutes with average distance of 8km in the state.

CHAPTER ONE

INTRODUCTION 



1.0 INTRODUCTION

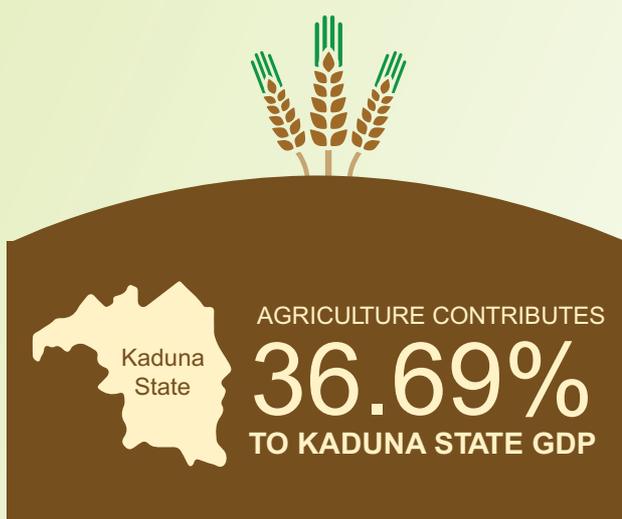
The dearth of relevant and accurate data in many sectors of Nigeria's socio-economic life has been a major challenge to planning and formulation of policies in the country. This has resulted in poor planning and implementation of many policies in Nigeria since its attainment of independence in 1960. The problem is not only limited to the federal government as many state governments are also faced with data challenges. However, the Kaduna State government recognizes the need for accurate and reliable data generation for policy formulation and development in the state. In this regard, the Kaduna Data Revolution was designed to support the planning, implementation and evaluation of progress against the Restoration Master Plan. The Kaduna State Executive Council endorsed the commencement of the Kaduna Data Revolution in November 2015 signifying the state government's recognition of the importance of data in the planning, formulation and implementation of policies.

The Kaduna State Bureau of Statistics (KDBS) have undertaken an assessment of the data gaps against the Restoration Master plan, which resulted in conducting the Kaduna State General Household Survey, KDGDP Survey, and Annual School Census. One of the key findings from the GDP survey was the importance of Agriculture as the main contributing sector to the State GDP. The sector growth rate is not encouraging considering its position as the sector with the major share in the state's GDP. To attract more investors to the state

to improve the agriculture sector, there is need for baseline data to understand the agricultural structure setting in the state such as the number of farming families in the state, the major crop produced in each Local Government etc. On this note, the Kaduna State Bureau of Statistics conducted the Agricultural Structure Survey.

1.1 BACKGROUND

The findings from the GDP Survey KDBS conducted for Kaduna State show that Agriculture contributes 36.69 percent share to Kaduna State GDP. It holds the major share compared to other sectors of the economy. Agriculture is also the highest employer of labour in the state, the result of the General Household Survey conducted by KDBS in December 2015 indicates that 79.6 percent of households in Kaduna State were involved in agriculture. This shows that Agriculture is very important in improving the economy of the State. Despite the huge potential agriculture has in attracting investors into the state



¹[Data Revolution is a proposed action from Sustainable Development Goals (SDGs) document seeking Nations and States to revolutionise data collection activities for the implementation of SDGs. Kaduna State was the first State in Nigeria to implement data revolution strategy which the Governor accented to in November 2015]

²[Restoration Master Plan is a manifesto by the Administration of Malam Nasiru El Rufia, the Governor of Kaduna State, on Sectorial Reform]

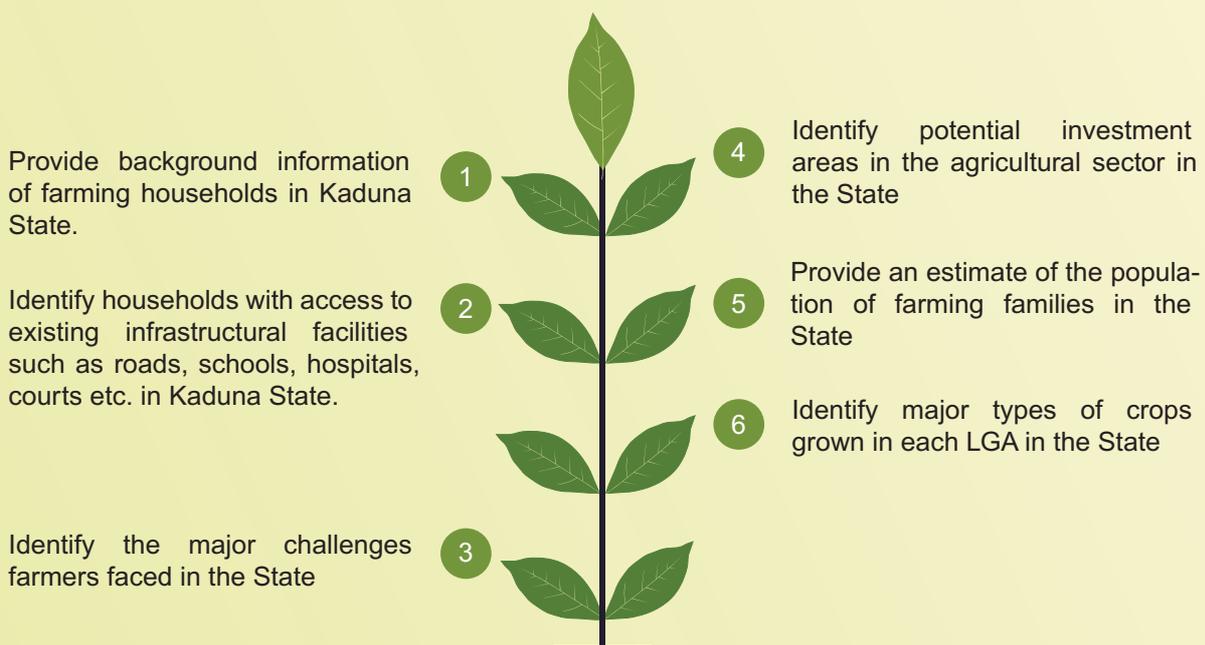
³[Kaduna State Gross Domestic Product Survey (2016)]

and improving its economy, relevant data on the types of agricultural activities practiced across the state and the number of people involved in each activity are not readily available. In addition, the state does not have data on the infrastructural needs of farmers, their ability to access inputs and the nature and effect of security challenges on their activities. This situation presents a major challenge to the state government and private investors. The state government needs such information to plan effectively towards addressing the challenges in the agricultural sector, thereby creating more jobs and food in the state. On the other hand, the private sector needs an enabling environment to invest in and the agricultural sector presents great opportunities for private investors.

The Agricultural Structure Survey intends to provide relevant information for effective planning and investment. It provides a source of basic gazette type of information on all settlements in the state; it also serves as a frame for future surveys on agriculture. Kaduna State Agricultural Development Project (KADP) carried out a similar project (Village Listing Survey) in 2007; the information contained in the report were rather outdated and had some major factors missing. Agricultural Structure survey tends to provide the missing data. The survey was design to estimate the total households in the State. The Bureau collaborated with MOAF, KADA and ENABLE2 in carrying out the research.

1.2 OBJECTIVES

The overall objective of the project is to conduct a baseline survey, which will provide an effective baseline data and information for Government policies as well as private participation in the agricultural sector. Specific objectives are to:



1.3 OVERVIEW

The agricultural sector is the most important non-oil economic activity; it is also the single largest employer of labour forces in the State (79.6 percent according to KDGHS, 2015) and contributed 36.69 percent of State GDP in 2015. The Agricultural Sector contribution by sub-sector are; Crops (33.67%), Livestock (2.65%), Fisheries (0.24%) and Forestry (0.11%).

Kaduna produces 22 percent of the total country's maize, and 10 percent of groundnuts (peanuts) and the state trades' agricultural produce to neighbouring state. The sector is dominated by wet season planting and an irrigated dry season planting. Most farmers currently produce cereal crops such as maize, sorghum, millet and rice during the rainy season. Cereal crops are exported to surrounding states and are an important source of cash. (CADP report 2014).

Nigeria is putting priority in place in order to seek options to diversify into non-oil sources of growth and away from over dependence on oil and gas. The agricultural sector is seen as one of the main sources of growth and important option for the diversification.

The problem of malnutrition can be resolved through the agricultural sector where, for example, nutrient-rich varieties of staple food crops can also help reduce malnutrition by providing micronutrients to the populace.

Productivity has not grown sufficiently, due largely to underinvestment in research and new technology, slow adoption of existing improved technologies, constraints associated with the investment climate, and lagging infrastructure. Government interventions aimed at accelerating agricultural growth, such as the quite successful Fadama Program, have targeted poor producers engaged in largely subsistence production with modest interaction with markets accessibility.



Agriculture is the single largest employer of labour force in the State, employing

42.4%

of the workforce

Kaduna State Produces:



22%
of Maize consumed
in Nigeria



10%
of Groundnuts (peanuts)
consumed in Nigeria

The State is well positioned to take advantage of its cheap labour and central location, which reduce input and transport costs, respectively; it is also well positioned to develop its agro-processing sector. The state is home to important agro-processing plants (e.g. dairy products, soft drinks, flour, groundnut oil), which may expand to meet regional and national demand. Agro-processing businesses can also capitalize on Kaduna's strengths in crop production including Yam, Groundnut, Maize, Beans, Corn, Millet, Ginger, Rice, Shear Butter, Maringa and cassava. Cheap inputs are in abundant supply, both within Kaduna and in neighbouring states (Kaduna Development Plan, 2016).

1.4 SCOPE

The Survey covers the 23 LGAs of the State, both urban and rural areas; it also covers 255 EAs with 10 households each covering 2550 households. The Head of the Farming Households serves as the respondent to the questionnaires. It covers the Demographic structure of the Farming families, their educational background, the existence of market and access, beneficiary of government programs, nature of irrigation farming etc.



23
LGAs

in Kaduna State were covered in this Survey



2,550

HOUSEHOLDS were covered in the Survey with heads of households serving as respondents



Cheap inputs are in abundant supply, both within Kaduna and in neighbouring states

CHAPTER TWO

SURVEY METHODOLOGY 



2.0 INTRODUCTION

The conduct of KASS baseline survey lasted between January and February 2017 in the 23 LGAs of Kaduna State. After which, the households engaged in farming activities were listed. A stratified simple random sampling procedure was used to select farming households.

2.1 SURVEY DESIGN

A 2-stage sampling with a simple random sampling (SRS) of enumeration areas was carried out to cover each ward in each LGA, which formed the primary sampling units (PSU). All the households in the selected

EAs were listed before being stratified into farming and non-farming households.

Farming households formed a frame from which secondary sampling units (SSUs) were drawn. One EA from each ward was randomly selected, given a total number of 255 EAs, 10 farming households were designed and drawn from the frame of farming household in each EAs covering 2550 households for the State. The percentage of the farming household in each LGA listed (covered) represent the average percentage of the farming hh in the whole LGA therefore providing an idea of farming household in the state.

2.2 SAMPLE SELECTION

Table 1: 2,367 households were covered across the 255 wards in 23 LGAs of the State as shown below:

LGA	FREQUENCY	PERCENT
Igabi	120	5.1
Jemaa	118	5
Kachia	117	4.9
Zaria	112	4.7
Birnin Gwari	109	4.6
Giwa	110	4.6
Kauru	110	4.6
Kubau	110	4.6
Sanga	110	4.6
Zangon Kataf	110	4.6
Chikun	106	4.5
Lere	106	4.5
Soba	107	4.5
Kagarko	101	4.3
Makarfi	101	4.3
Ikara	100	4.2
Jaba	99	4.2
Kaura	100	4.2
Kudan	99	4.2
Kajuru	94	4
Sabon Gari	88	3.7
Kaduna South	74	3.1
Kaduna North	66	2.8

2.3 SURVEY INSTRUMENT

KDBS and ENABLE2 Consultants designed the questionnaire with inputs from stakeholders in agriculture. KDBS wrote the prompt for the electronic questionnaire and deployed to the phones. The Bureau employed the use of Android phone for data capturing during KASS.

2.4 FIELD WORK ARRANGEMENT

Six Enumerators and one Supervisor formed a team for data collection.

2.5 QUALITY CHECK

Eleven monitors were engaged to monitor the exercise supported by four IT expert to monitor the online submissions and assess the quality of submissions.

2.6 DATA PROCESSING

KDBS headquarters Kaduna serves as data processing unit, using online submissions and IBM Statistical Package for the Social Sciences (IBM SPSS) for tabulation.

2.7 VALIDATION SECTION

KASS result validation with stakeholders was held on 21st March 2017 with participants drawn from different organisations including the media.

2.8 REPORT WRITING

KDBS Staff and ENABLE2 Consultant jointly carried out report writing.

CHAPTER THREE

DATA ANALYSIS



3.1 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

3.1.1 AGE AND GENDER

93.3 percent of the respondents are male, while 6.7 percent are female. 93.3 percent are married, while 3.6 and 2.6 percent are single and divorced respectively. 28.7 percent of the respondents are within ages 31-40 years, 23.7 percent are within the ages

41-50 years, while only 1 percent of the respondents are within ages 80 and above. The minimum age is 18, 100 years as maximum age and the average age is 44 years, which shows that active working class group in the state heads the farming families. 94.2 percent of the respondents are heads of households.

FIGURE 1: Gender percentage of Respondent

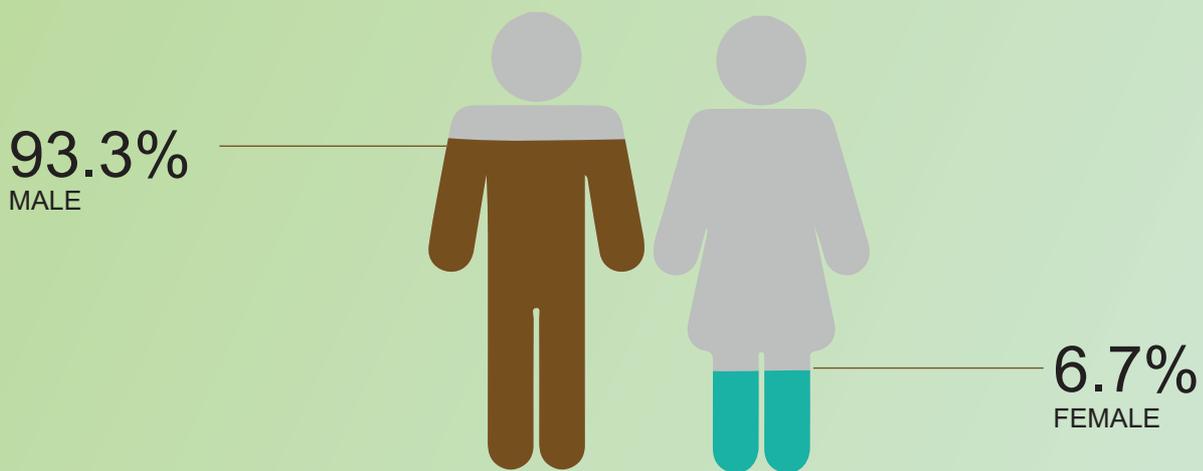


FIGURE 2: Marital Status Percentage Distribution of Respondents

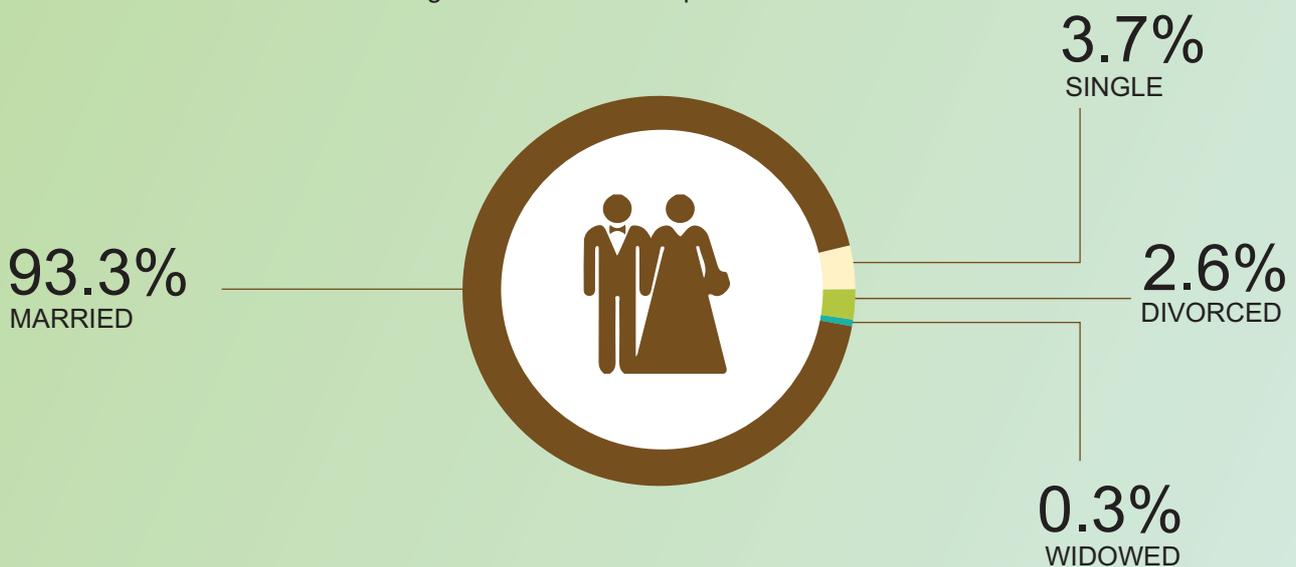
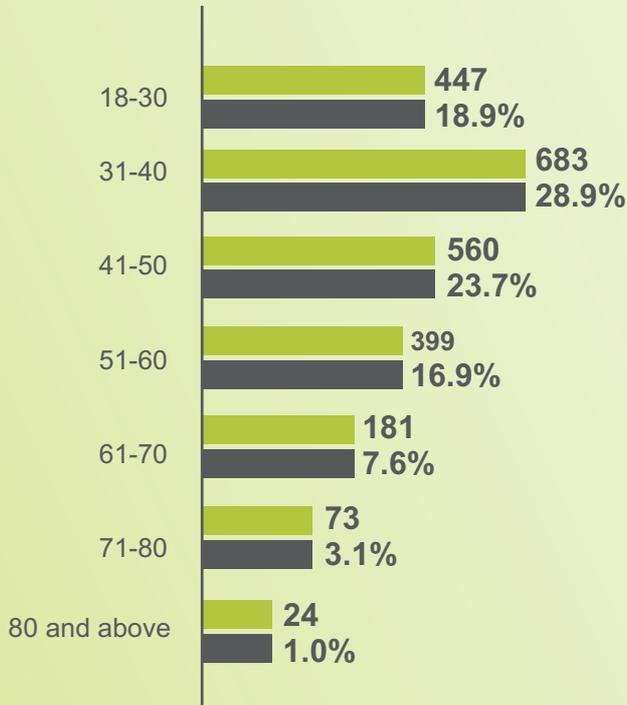


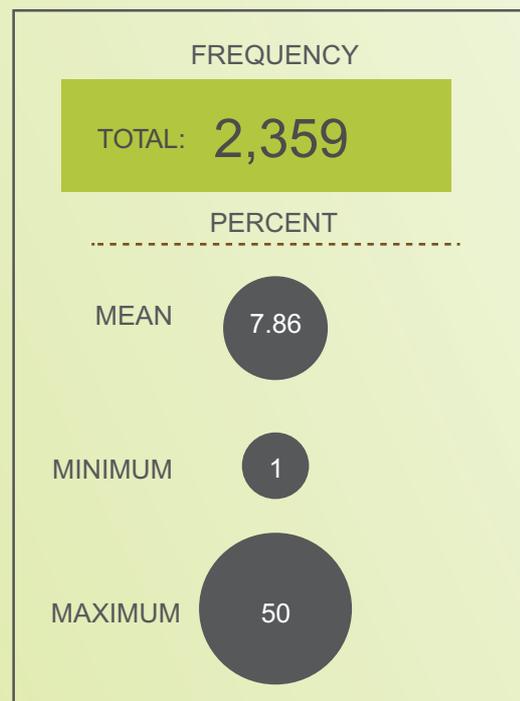
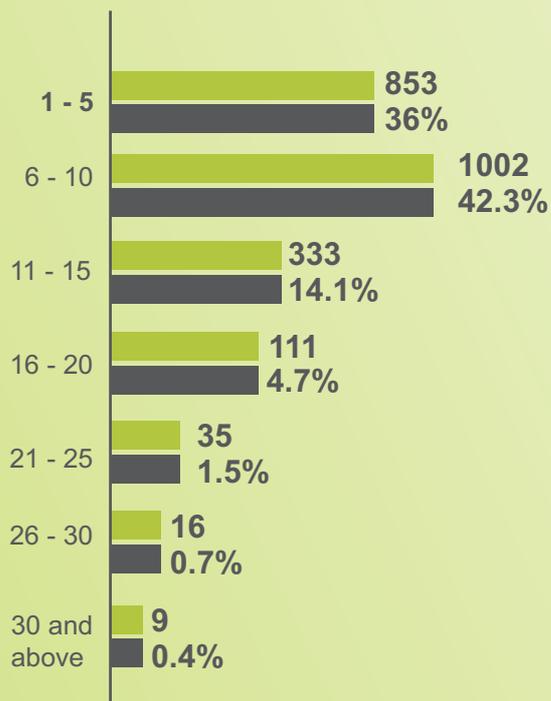
Table 2: Age Group of The Respondents



3.1.2 HOUSEHOLD SIZE

42.3 percent of farming households in the state have within 6-10 members, the large household size reflects the age-long African setting of high household size, and cheap labour supply. The table further depicts that 1-5 persons per household ranked second with 36 percent, 11-15 followed with 14.1 percent. The study which table shows that Kajuru, Kudan and Zangon Kataf LGAs has larger percent of household within size 6-10 while Jaba, Kaura, Sanga and Jema'a have their larger family size from 1-5.

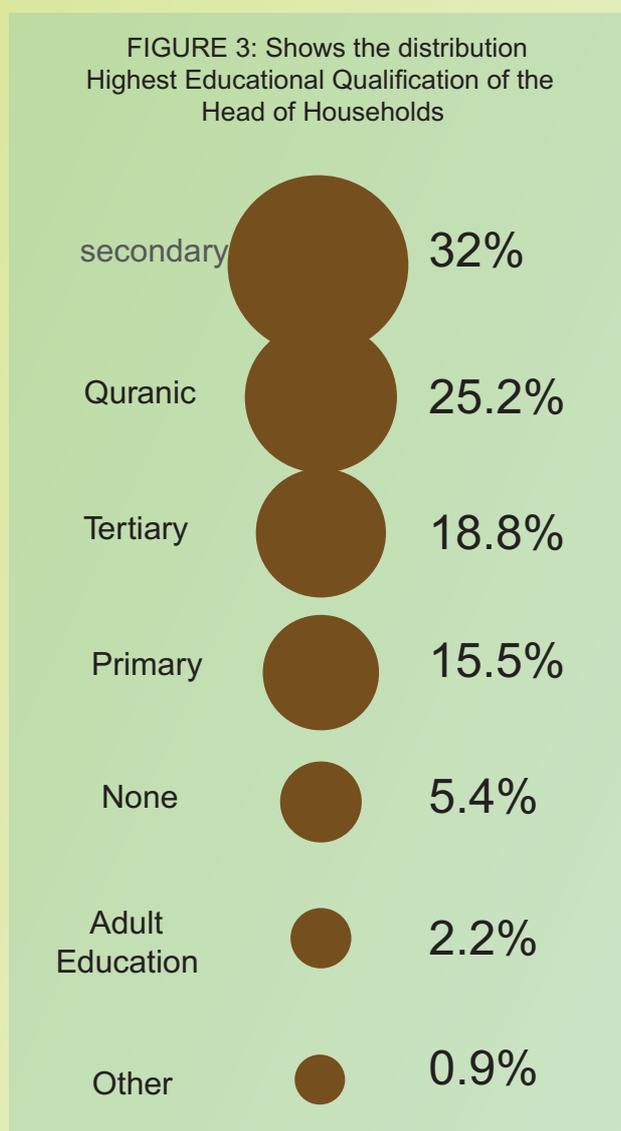
Table 3: Distribution of Family Size



3.2 Socio Economic Characteristics of the Households

3.2.1 EDUCATIONAL STATUS

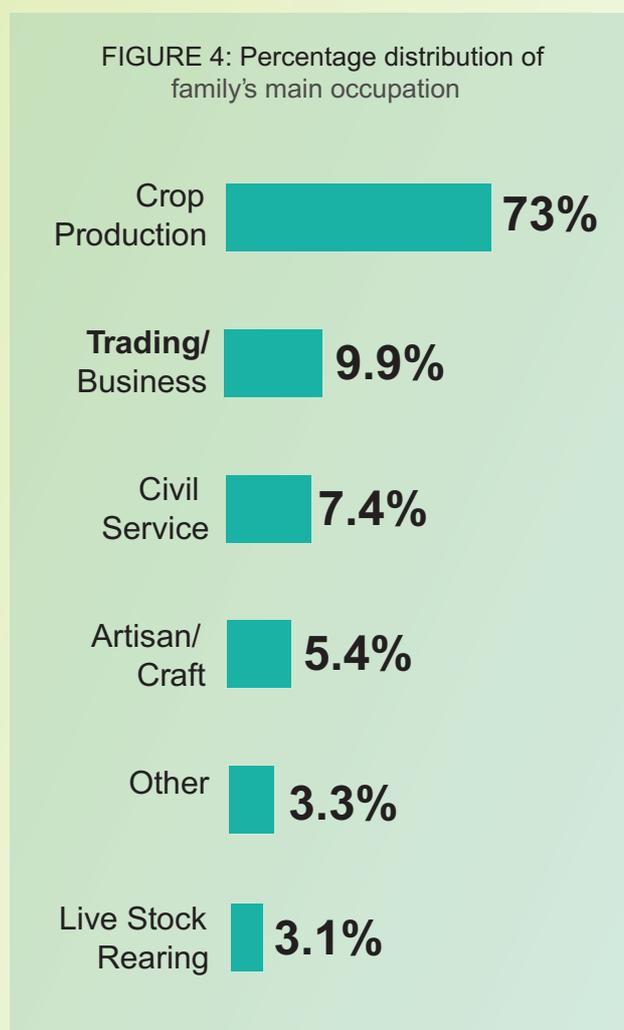
Fig 3. Shows the distribution of household level of education by Local Government. Assessing the educational qualification of the head of the farming households is paramount; it helps to show the basic level of qualification in terms of assessing information and updating oneself in new agricultural methods. Figure 3 shows that the highest qualification is secondary school certificate with 32 percent followed by 25.2 percent Qur'anic, 18.8 percent tertiary education and 15.5 percent primary education.



3.2.2 OCCUPATIONAL STATUS

The main occupation of the farming families in Kaduna State is crop production with 73 percent, 9.9 are into trading, 7.4 percent are civil servants, 5.4 percent artisans and 3.1 percent are into livestock rearing. 99.6 percent of the farming families that are into crop production in the state plants their crops during raining season (production 1 cycle) while 10.3 percent are into dry season farming (production 2 cycle).

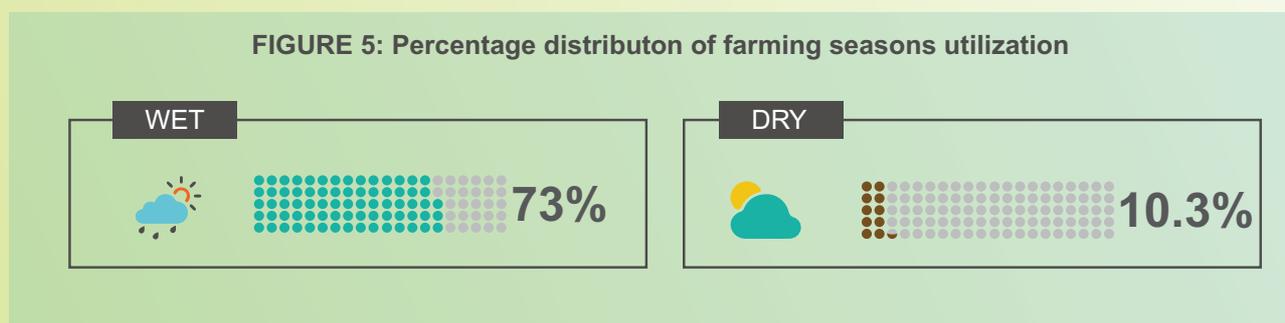
The study shows that 30.8 percent of the farming families have between 11-20 years of experience, 23.3 percent between 21-30 years of experience.



3.3 CROP PRODUCTION

3.3.1 FARMING SEASON

Figure 5 shows that majority of farmers in the State are into rainy season farming only 10.3 percent of households are into dry season farming. One of the present governments' development plan in agriculture is to encourage all season farming in the State by trying to increase irrigation system which is designed to improve crop production during the dry season. The result showed that an estimate of 1,316,937 farming households were into rainy season farming compared to only 136,189 households who were into dry season farming.



3.3.2 LAND AREA CULTIVATION

On the average, a farming household in the State has 3.84 ha of land available for farming with 3.31 ha used for wet season farming and 0.67 ha used for dry season farming. 82.6 percent of farming households in the State cultivate 1 to 5.99 ha of land during wet season, with 6.5 and 5.2 households cultivating 6 - 9.99 and 10 and above ha of land.

Table 5: Land area allocated for wet and dry seasons crop production

HECTARE	Total Land Area		Land for wet Season Farming		Land for Dry Season Farming	
	Frequency	% Percent	Frequency	% Percent	Frequency	% Percent
0.1 - 5.99 ha	1924	81.3	1954	82.6	587	24.8
6.0 - 9.99 ha	177	7.5	154	6.5	13	0.5
10 & above ha	170	7.2	123	5.2	21	0.9

3.3.3 MEMBERSHIP OF FARMERS COOPERATIVE/ASSOCIATION

The table 6 below shows that 10.6 percent of farmers are members of farmers' cooperative/association. The study shows that 11 percent of male farmers belong to a farming organization compared to 6.3 percent of females. Kaura, Zangon Kataf, Chikun and Jema'a LGA have more females belonging to farmer's organisation.

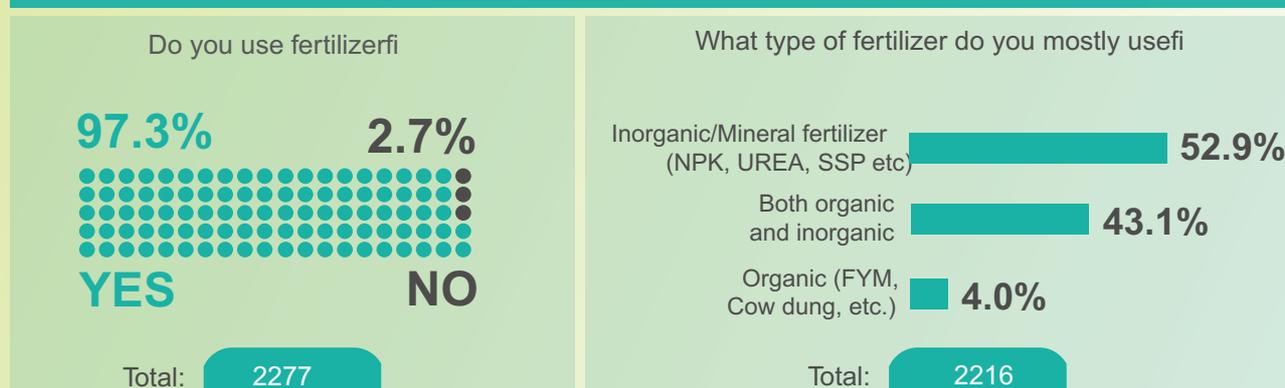
Table 6: Percentage distribution of Membership in farmer's cooperative/association

B13 Membership of farmers cooperative/association			
	Member	Non-Member	Total
	10.6%	89.4%	2277

3.3.4 FERTILIZER USE

97.3 percent of farmers in the State use fertilizer for farming, which are mostly inorganic/mineral fertilizer but 43.1 percent used both organic and inorganic fertilizer. 15.5 percent of farmers in Zangon Kataf used only inorganic fertilizer which is the highest in the State, this is because of the type of crops cultivated in the area which required organic fertilizer for its production e.g ginger, yam etc.

Table 7: Percentage Distribution of the use of fertilizer and the different types utilized



3.3.5 MAJOR CROPS FOR WET/DRY SEASONS

Figure (6) shows that the five major crops cultivated during wet seasons in the State are Maize, Rice, Guinea corn and Soya Beans. 31.8 percent of households cultivate maize in the State followed by 12.4 percent for rice and 9 percent for guinea corn.

FIGURE 6: Percentage Distribution of Household Producing the main 5 crops during wet season

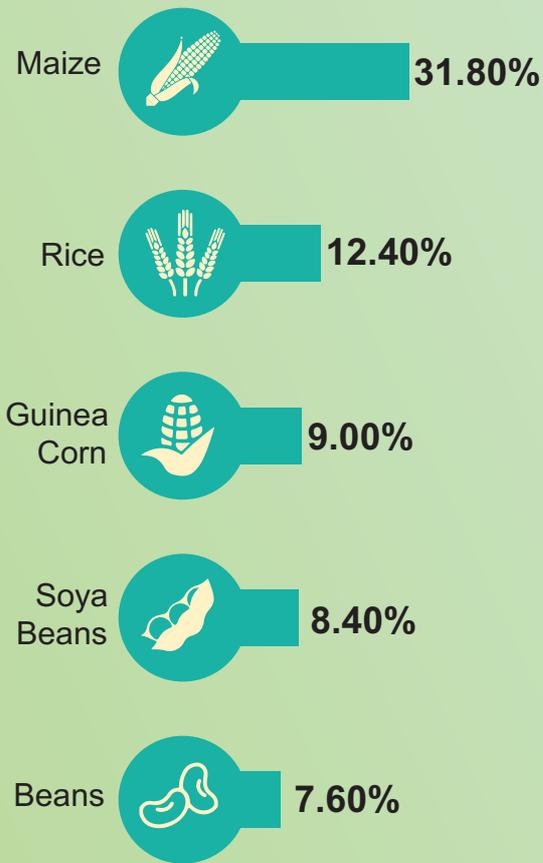
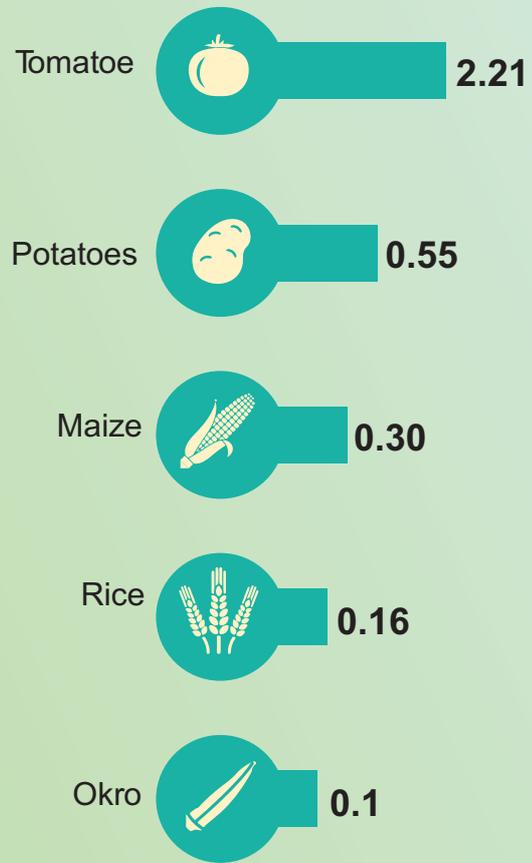


FIGURE 7: Percentage Distribution of Household Producing the main 5 crops during dry season



3.3.6 PLANTING MATERIALS USED

91.8 percent of households makes use of seed for planting, 8.5 percent makes use of seedlings while 1.3 percent makes use of both seed/seedlings for planting figure 8. More farmers used local seed for farming in the State compared to improved seed with a distribution of 79.4 percent to 30.6 percent.

FIGURE 8: Percentage Distribution of Planting Material used during wet season.

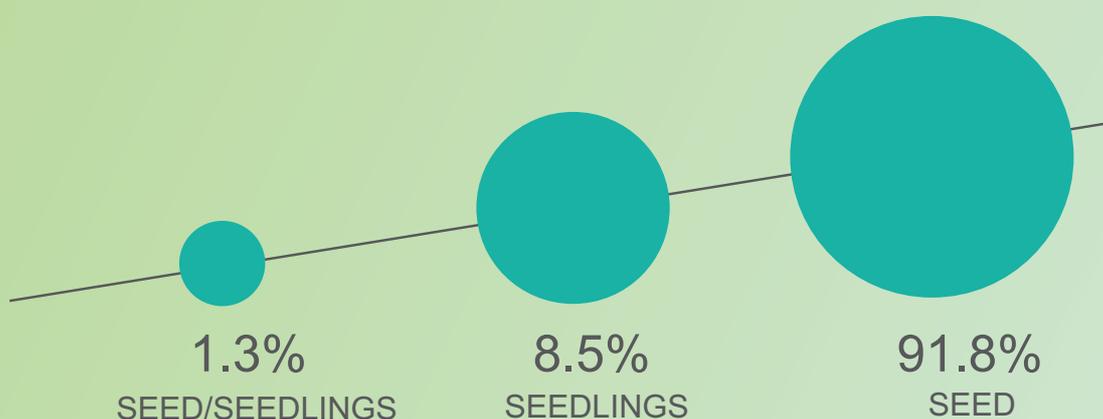


Table 8: Percentage distribution of Local and improved seedlings used.

VARIETIES		
IMPROVED	30.6%	LOCAL 69.4%
		TOTAL: 2277

3.3.7 TYPE OF LAND

Looking at the conditional descriptions of a plain based on an elevation above sea level usually described as upland and lowland. Uplands may refer to a hill, an area of higher land generally. 79.5 percent on table 9 shows that households cultivate upland farms compared to 20.4 percent that cultivate lowlands. The total number of hectare cultivated under lowland for the State is 883,717.47 ha and for upland 2,045,506.18 ha.

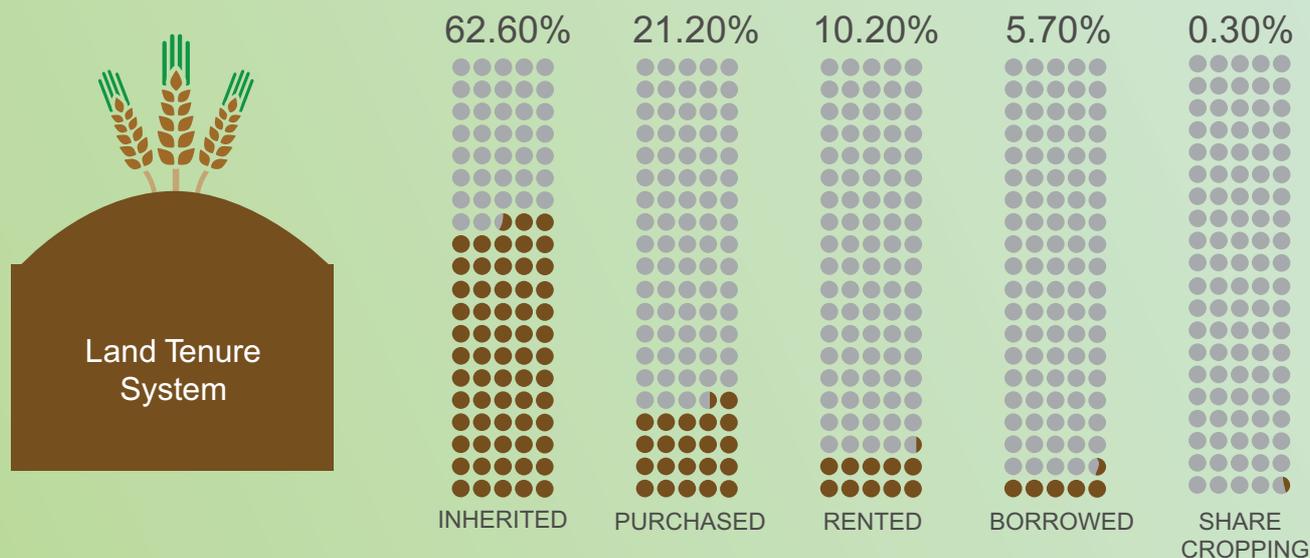
Table 9: Percentage distribution of Lowland and Upland used in crop cultivation

	Lowland (ha)	Upland (ha)
% of crops farm in the land type	20.40%	79.50%
Mean (ha)	0.67	1.55
Total (ha) under cultivation	883,717.47	2,045,506.18

3.3.8 LAND TENURE SYSTEM

The lands used for farming activities in the State were mostly inherited properties (family land) with 62.6 percent. 21.2 percent of households purchased their land while 10.2 percent leased or rented their lands.

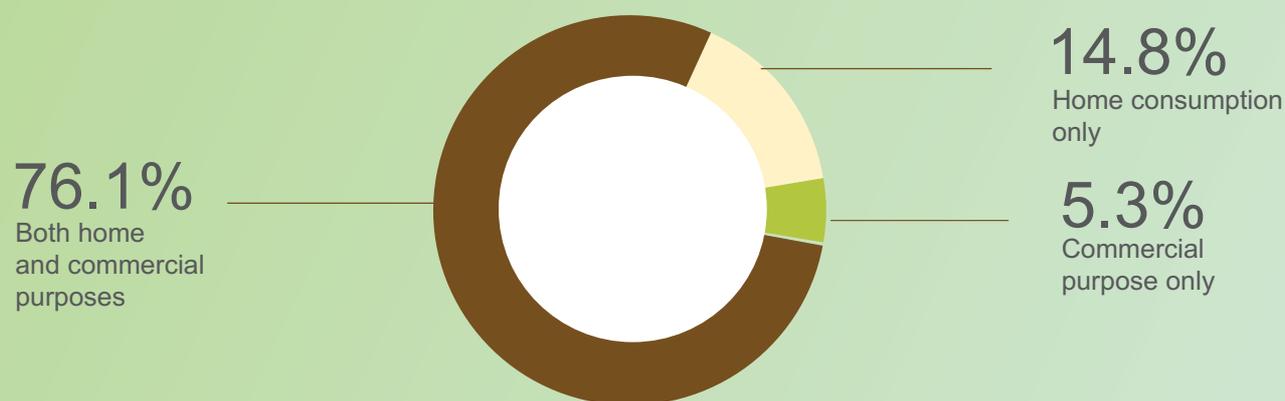
FIGURE 9: Percentage distribution of Land Tenure System used



3.3.9 MAIN REASON FOR CROP CULTIVATION

Every farming household in the State have various reason why they farm. From figure (10) 76.1 percent of households engaged in farming for both home consumption and commercial purposes, 14.8 percent farm for home consumption only while 5.3 percent farm for commercial purpose only.

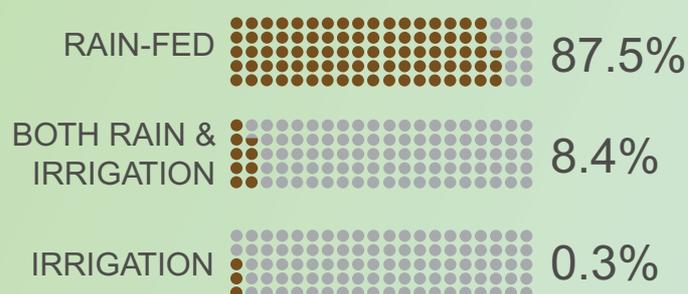
FIGURE 10: Percentage distribution on the main reason for cultivating crops



3.3.10 TYPE OF PRODUCTION SYSTEM

The State has overtime tried to improve the irrigation system to encourage all season farming. The result showed that only 0.3 percent of households in the state adopt the use of irrigation system in farming, 8.4 percent farm using irrigation system and rain-fed showing that they do all season farming by applying irrigation system during the dry seasons, while 87.5 percent of households farm used rain-fed system as can be seen on figure (11).

FIGURE 11: Percentage distribution on type of production system used



3.3.11 MAIN CROPPING SYSTEM

Sole cropping remains the main cropping system mostly used in the State with 69.2 percent of households into the system while 27 percent of households are into mixed cropping.

FIGURE 12: Percentage distribution of Main Cropping system used for production



3.3.12 CROP PRODUCTION (TONNES/HECTARE)

Two Million, Thirty-Four Thousand, Seven Hundred and Fourteen point Three Zero metric tons of maize was produced during the dry season harvest in the state and 2,166,799.80 in both wet and dry season farming. 40,135.67 of soya beans was produced in the state during wet season harvest. The main crop planted during dry season was tomatoes, but less farmers were involved in its cultivation, so 88,449.76 tons were produced for dry season alone.

Table 10: Total number of crops produced in tons for both wet and dry seasons.



WET SEASON

MAIZE	RICE	GUINEA CORN	SOYA BEANS	BEANS
2,034,714.30	948,877.13	204,763.81	40,135.67	1,041,586.63



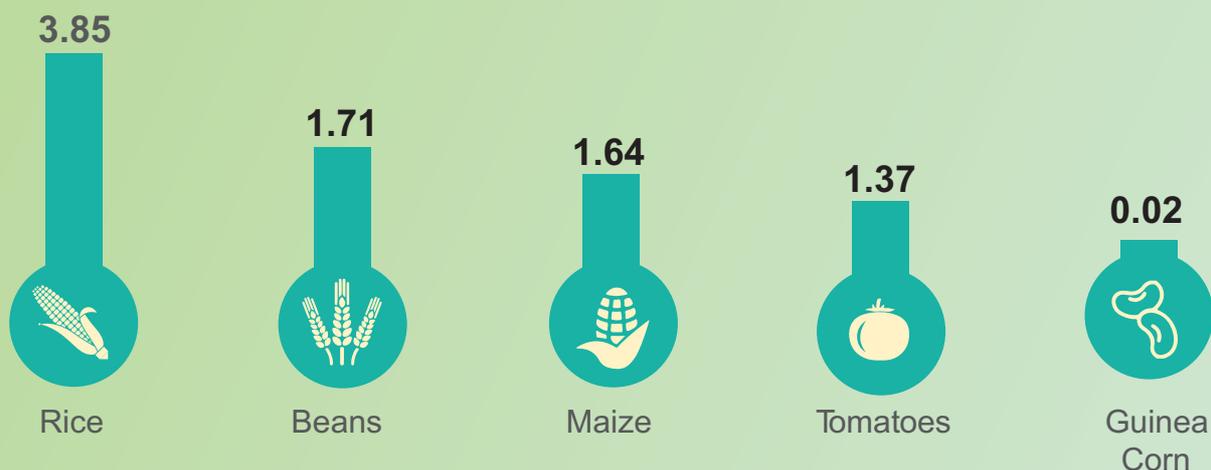
DRY SEASON

MAIZE	RICE	TOMATOES	POTATOES	OKRA
132,085.504	15,341.23	88,449.76	95,258.93	592.93

3.3.13 YIELD PER HECTARE

From figure 13 rice has the highest yield per hectare in the State followed by Beans with 1.71, Maize 1.64, Tomatoes with 1.37 and Guinea Corn with 0.02 yield per hectare

Figure 13 Crop Yield per Hectare



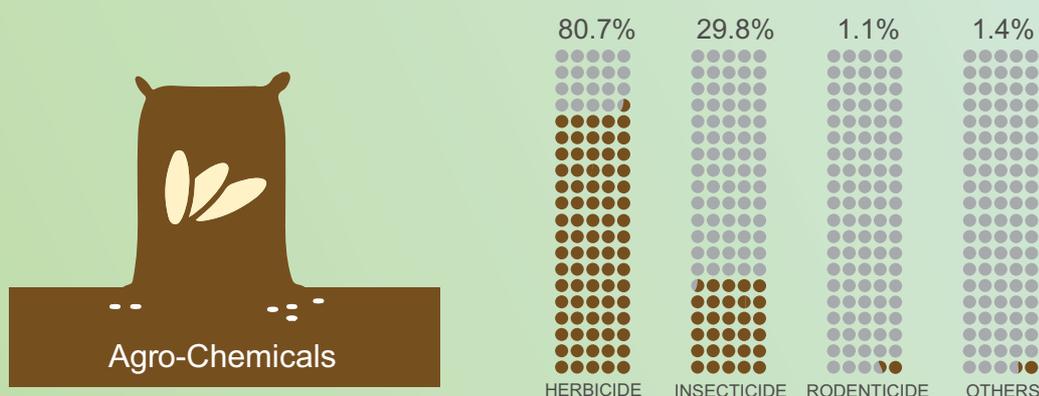
3.4 USE OF AGRO-CHEMICALS

85.2 percent of the farming families made use of agro-chemical products during farming season. Fig. 13 s shows that majority of farming families (80.7 percent) applied Herbicide alternatively called weed killers which are used to control unwanted plants, while 29.8 percent used insecticide to kill insect that attack farms. It is widely believed that the use of insecticide contributes immensely to the increase in Agricultural productivities.

Table 11: Percentage of farming families that made use of Agro-Chemicals during farming season.

	Do you use Agro-chemicals in cross productionfi	
	Frequency	Percent
No	261	11.0
Yes	2016	85.2
Total	2367	100.00

FIGURE 13: Percentage distribution of Agro-Chemicals used



3.5 ACCESS TO MARKETS

3.5.1 AVERAGE TRAVEL TIME AND TRANSPORTATION COST

Table (12) shows that households spent more time in accessing markets across the State. However, travel distance to market is highest in Kauru LGA (26km), followed by Kubau and Sanga LGAs with 15km. there seems to be a problem with transportation in the state as it takes an average of 25 minutes (waiting time) to board a motor vehicle and 15 minutes to board a motorcycle. An average fare through motor vehicle per passenger to market across the state is N220, the highest fare is paid by households in Kauru and Kubau LGAs, which highlighted the major challenges faced by farmers in the area. The result also shows that the farmers in areas close to urban LGAs pay less compared to farmers in more rural areas.

Table (13) shows that the average time taken by motor vehicle to market through all-weather road was 22.39 minutes and the distance on average across the state was 8km. It also shows that the average cost of hiring a pick up van and canter truck from farm to the nearest market was N4,587 and N5,087 respectively.

Table 12: Average time, distance and amount spent to access the market

	Average Distance to nearest town in km	Average Distance to nearest town in km	Average time taken to wait for motor vehicle transport to market par minutes	Average time taken to wait for motorcycle transport to market par minutes	Average Fare to nearest urban area by motor vehicle to market in Naira par person.
State (Mean)	11.72	9.32	25.43	15.54	220.97

Table 13: Average time, distance, cost of hiring truck and number of traders that patronize in a month.

	Average Travel time by motor vehicle to all-weather road in minute	Average Distance to nearest all-weather road in km	Average Cost of hiring one pickup truck from farm to the nearest market in Naira	Average Cost of hiring canter truck from farm to nearest market	Average Number of traders who bought your products during past months
State (Mean)	22.39	8.29	4587.98	5087.12	26.97

3.5.2 MAJOR MEANS OF TRANSPORTATION

Figure (14) shows that across the state, the most preferred means of transporting farm produce to market was motor vehicle with 50.1 percent of households and motorcycle with 42.2 percent. 1.5 percent of households still carry their farm produce to markets by head while 1 percent transport using bicycle. The most important market the farmers sell their produce is through village market (77.9 percent) followed by urban markets with 58.6 percent, 46 percent sell through farm gate and only 12.9 percent sell in regional market. 73.9 percent of farmers in the state deals majorly with the retailers directly, while 66.9 percent deals with the wholesalers, only 11.2 percent deals directly with individual or organizations that are into processing.

FIGURE 14: Percentage distribution of Main means of transportation to the nearest market

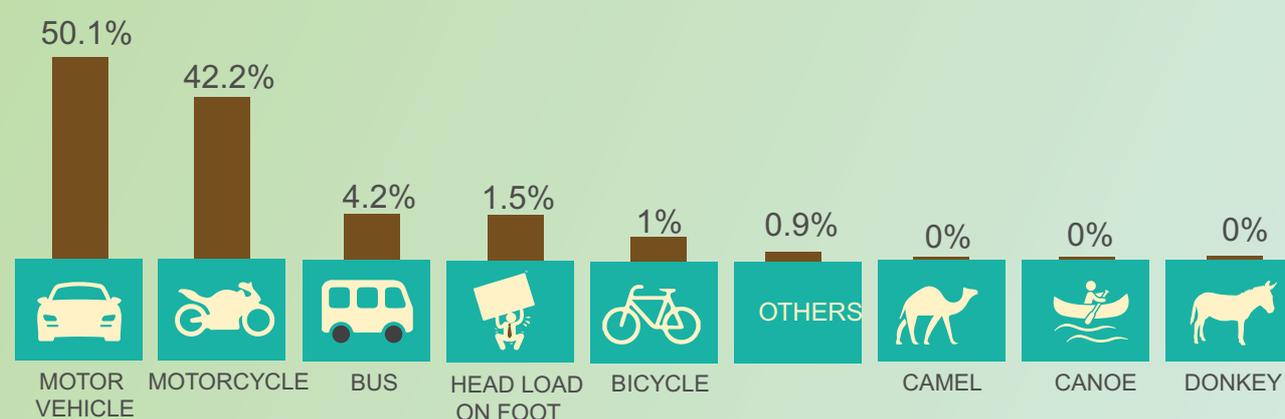


FIGURE 15: Percentage distributions of most important types of Markets farmers sell their produce

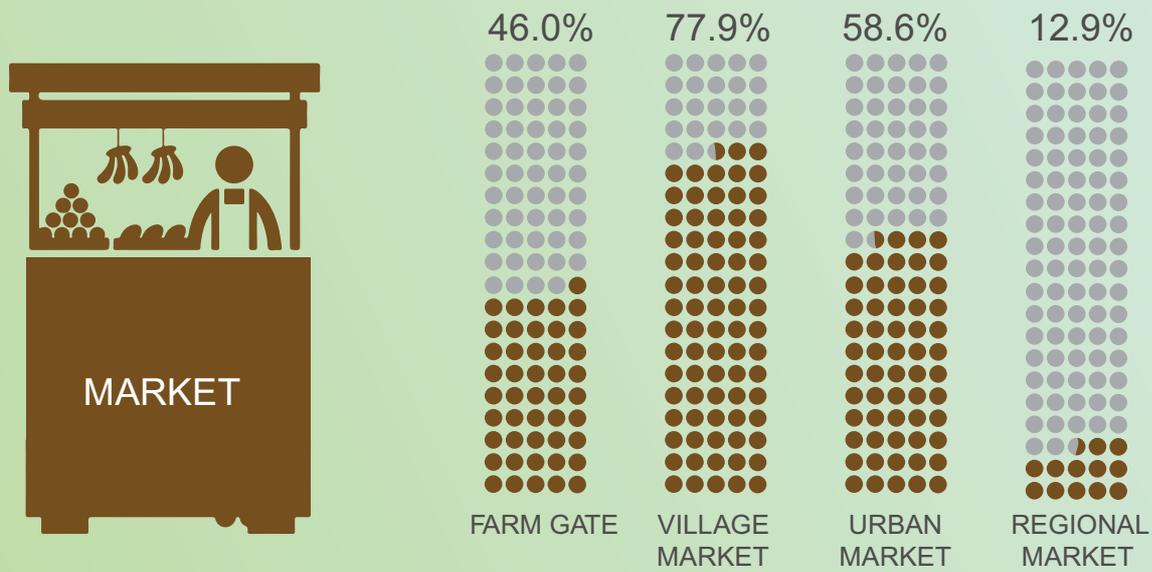
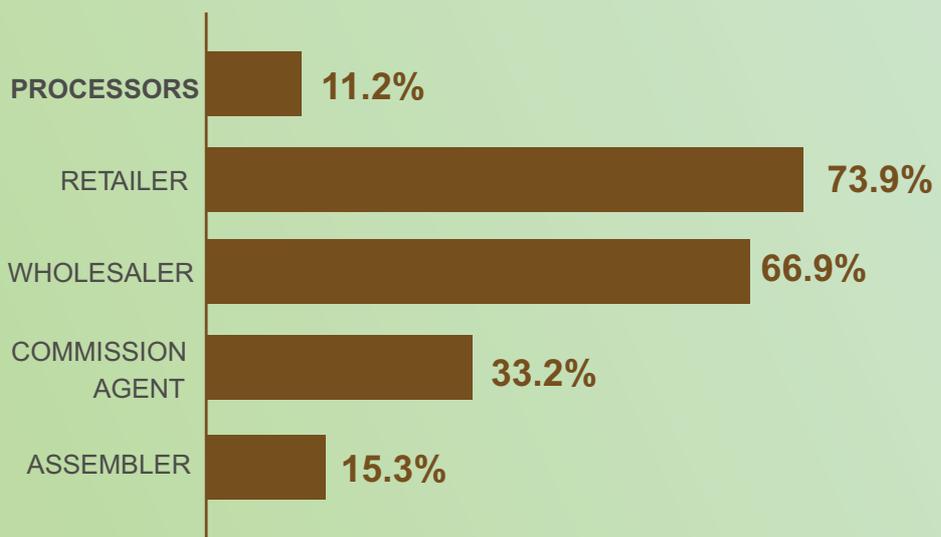


FIGURE 16: Percentage distribution of most important types of traders farmers do business with



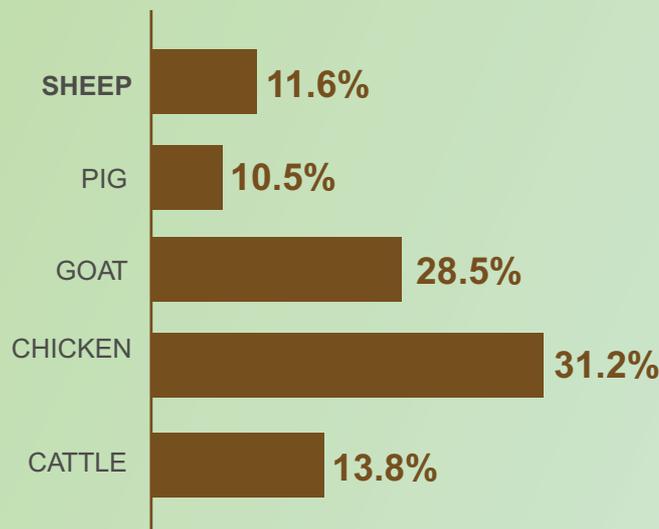
3.6 LIVESTOCK PRODUCTION

Figure 5 above showed that 3.1 percent of household in the State are mainly into livestock for livelihood while table A0 in the Annex showed that 30 percent of the household were involve in livestock on either small or big time.

From the 30 percent of household that were into Livestock, were majorly into Sheep, Goat, Chickens, Pig and Cattle rearing. Chickens were reared by 31.2 percent of the household, followed by Goat with 28.5 percent, 13.8 percent of household owns Cattle, 11.6 percent own Sheep and 10.5 percent of household own pig.

5

MAJOR LIVESTOCK



3.7 LABOUR

The households in the State applied mechanized farming mainly during threshing as shown on table (H1), 22.8 percent uses mechanized farming during threshing, while 56.7 percent makes use of animal traction during tilling of grounds. 15.1 & 4.9 percent of households makes use of mechanization during spraying and first weeding. In addition, 9.4 percent uses animal traction during first weeding.

The family man hours (male & Female) usually used in the state are mostly between 1 – 5 , while the average number of family man hours used in the state was 2 for Male and 1 for Female. Average hired man hours used in the state was 10 while communal man hours was 2. Jaba, Kagarko and Zangon Kataf LGA have the higher percent of households using family man hours (6 to 10). Hired labour is mostly used in Igabi LGA where 8.5 percent of household makes use of 100 and above hired man hours. Likewise, the higher community labour was recorded in Kauru with 15.1 percent households involved in community labour.

3.8 ACCESS TO CREDIT FACILITIES

The table below showed that only 2.5 percent of the farming families received any form of credit in the past two years and mostly provided by banks (0.9 percent) followed by government and families with 0.5 and 0.4 percent respectively. The loan is invested into farming mostly buying of fertilizers and seeds.

Table 15: Percentage distribution of farmers that received credit in the past two years

Have you received any form of credit in the past two yearsfi			
		Frequency	Percent
	NO	2307	97.5
	YES	60	2.5
	Total	2367	100

Table 16: Percentage distribution of the source of credit received

If yes, report the source of credit and the year(s) received.		
	Frequency	Percent
No Credit Received	2307	97.5
Bank	22	0.9
Cooperative Societies	5	0.2
Family	9	0.4
Friends	7	0.3
Government	12	0.5
NGO	5	0.2
Total	2367	100

3.9 EXTENSION SERVICES

3.9.1 EXTENSION PERIOD CONTACT

81 percent of the farming families in the state had contact with extension agents in agriculture. 2.9 And 2.8 percent of the farming families had a monthly and quarterly contact period with the extension agents respectively, only 0.6 percent had a weekly contact. (Table I 8)

3.9.2 ACCESS TO EXTENSION

18.0 percent have access to extension and technical support. The State has 200 extension agents across the state whose primary job is to assist the farmers in improving their crop production and yield through trainings and technical assistance, but the results show that they are not adequately in existence resulting to less number of farming household having access to extension agents. Meanwhile, only 8.1 percent had contact with the extension agent(s) on agricultural production and mostly on monthly basis.

FIGURE 17: Percentage distribution of farmers with access to extension and Technical support

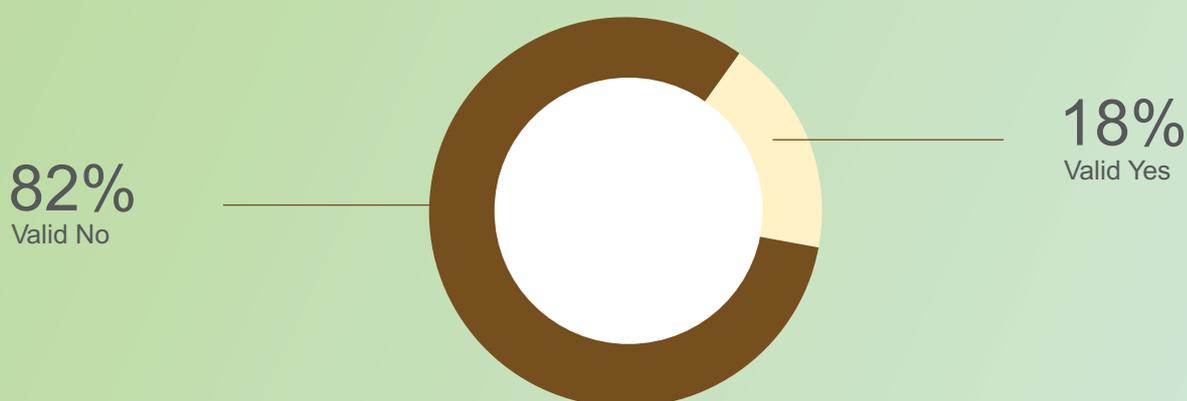


Table 17: Percentage distribution of farmers contact with extension agents on agricultural production

Contact with extension agent(s) on agric production		
	Frequency	Percent
	1942	82.0
NO	233	9.8
YES	192	8.1
TOTAL	2367	100.0

Table 18: Percentage distribution of period of contact between farmers and agents

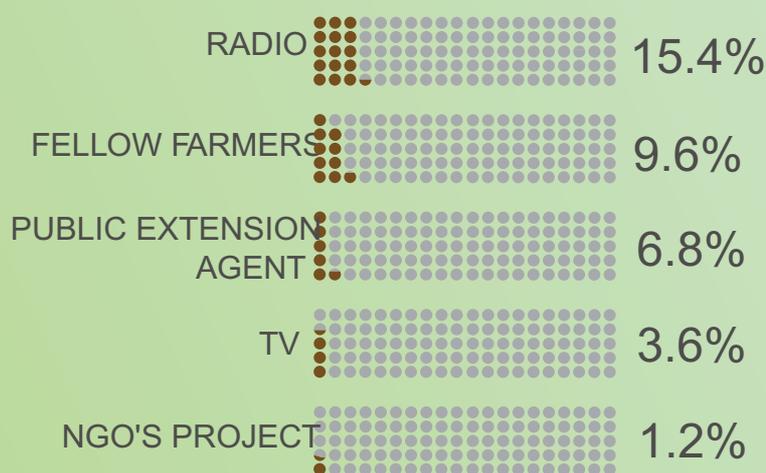
Period of Contact	2015		2016	
	Frequency	Percent	Frequency	Percent
		2175	91.9	2175
Monthly	68	2.9	71	3.0
Quarterly	67	2.8	68	2.9
Weekly	15	0.6	15	0.6
Yearly	42	1.8	38	1.6
Total	2367	100.0	2367	100.0

3.9.3 SOURCE OF INFORMATION ON AGRICULTURAL PRODUCTION

The major source of information in agricultural production among the farming families is radio with 15.4 percent, followed by fellow farmers with 9.6 percent and public extension agent with 6.8 percent. The preferred source of information still would be radio with 10.9 percent and public extension agent with 5.0 percent.

FIGURE 18: Percentage distribution for source of information on Agricultural Production

FIGURE 11: Percentage distribution on type of production system used



3.9.4 SOURCE OF TRAINING ON AGRICULTURAL PRODUCTION

4.5 percent of the farming families have received training on agricultural production during the last 2 years. The trainings are majorly on harvesting (2.3 percent), Storage techniques (1.8 percent) and post-harvest operation (1.6 percent).

Major source of training are government (2.6 percent), NGO (1.2 percent) and private agro-allied (1.1 percent). 3.4 percent of the farming families indicated the usefulness of the trainings.

FIGURE 19: Shows Percentage distribution on Areas of Training

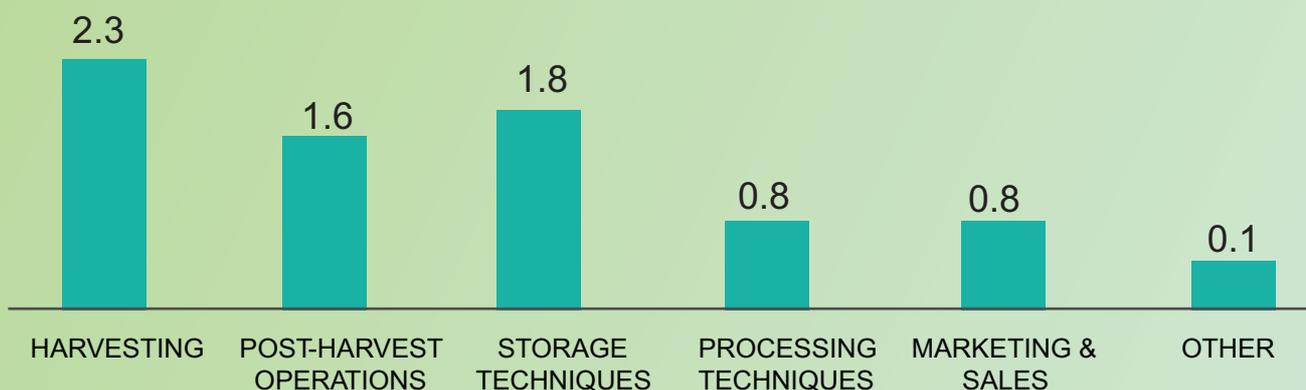


FIGURE 20: Percentage distribution on Source of Training

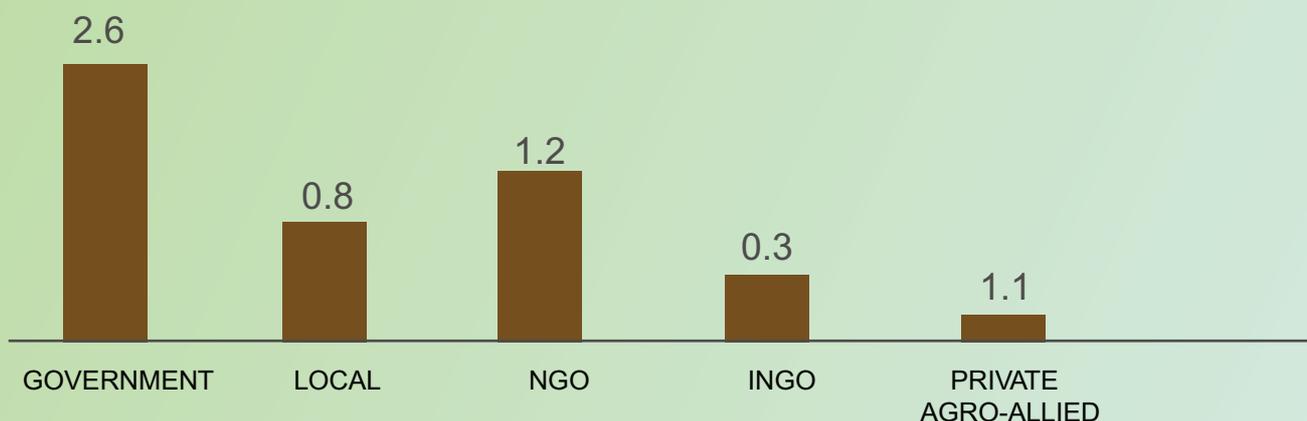
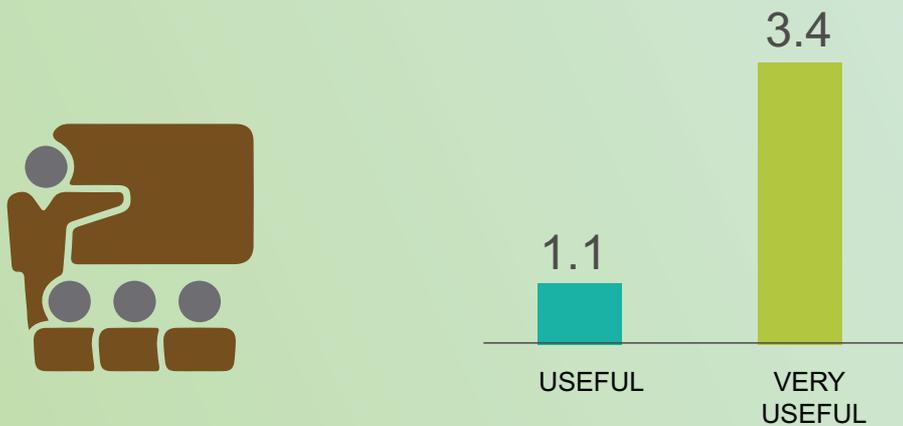


FIGURE 21: Percentage distribution on Usefulness of Training



3.10 ECONOMIC TREE

Table (E 1) shows that 41 percent of households in the state grew economic tree in their compound. A larger percent of households in Giwa (74.5 percent), Kuru (71.8 percent), Sanga (66.4 percent) and Zangon Kataf (66.4 percent) grew an economic tree. The major trees grown in the state are Mango (67.6 percent), Palm tree (29.1 percent), Guava (25 percent) and sheer butter (23.4 percent).

3.11 FISHERY

Figure 22: shows that 0.8 percent of households are into fishery, from which half of the number are into commercial fishery while the other half are divided evenly among both artisanal and homestead fishery.

Average cost of investing in fishpond & fingerlings was NGN125,555, which ranges from NGN5000 to NGN400,000 depending on the size with maximum harvest of 500 fishes and mean harvest of 77 fishes. The average cost of fish/kg is 731.

Average Male and Female labour used in fishery was three and one, hired labour was 2 with average pay/day of NGN391.67. (Table G3)

FIGURE 22: distribution of families into Fisheries and Aquaculture

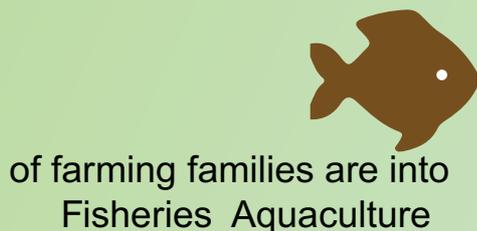


FIGURE 23: Percentage distribution of families into different types of Fishing

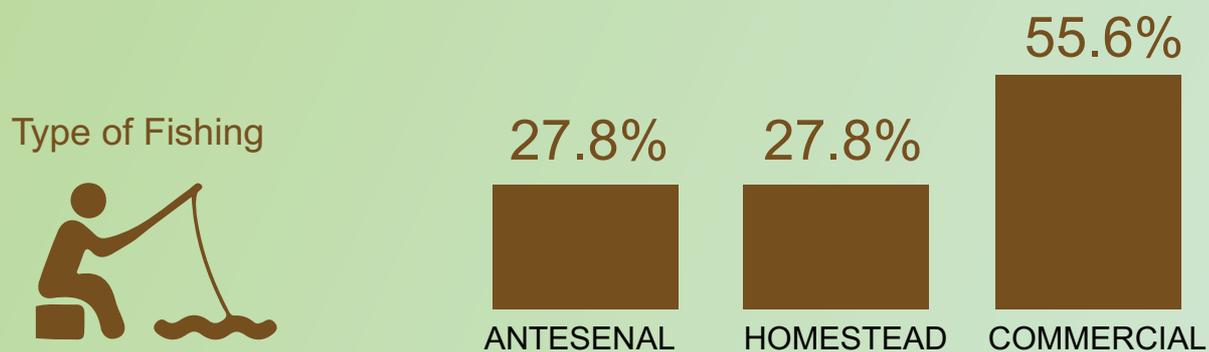


Table 20: Distribution of cost on investment per year.

	J. Investment Cost of shpond ngerlings Naira	J. Fisheries: sh caught	Price/kg	J. Total female family labor used-year person days	J. Total male family labor used year person days	J. Number of Labour of hired labor person days
Mean	125555.56	77.78	731.50	0.83	2.94	1.50
Std. Deviation	124728.516	160.387	192.999	1.505	1.893	2.854
Minimum	5,000	0	500	0	0	0
Maximum	400,000	500	1000	6	6	12

3.12 BEEHIVES

The State has only 1.2 percent of the farming households engaged in Beekeeping. Beekeeping is practice in some few local governments, mostly in Kaura followed by Sanga etc. Traditional way of beekeeping is mostly practice in Kaura and Sanga. Mostly the earnings from beekeeping is been controlled majorly by the heads of households. (Table C1)

CHAPTER FOUR

IMPLICATION OF THE
KEY FINDINGS FOR
STAKEHOLDERS



4.1 GOVERNMENT

The bottom line for any type of development strategy is the accumulation of knowledge and learning. Therefore, for self-sufficiency in food and cash crops production to be effective; there is the need for up-to-date information and data on production. The findings of this study filled the current gap by providing the needed information and data about yields and production estimates disaggregated by LGAs of major agricultural products of Kaduna State. This type of information, will guide government in understanding the potentials of the State in terms of creating employment and incomes. The findings also reveal some of the agronomic and socio-economic constraints affecting the agricultural sub-sector and such information will guide government in focusing and prioritizing its development efforts for the sub-sector.

4.2 EXISTING AND POTENTIAL AGRO-ALLIED COMPANIES

As evident from this study, agricultural production in Kaduna State (especially Maize, Rice and Soybean) for the 2016 cropping season is extensive. The KASS identified major production LGAs clusters in the State. The study characterized all these LGAs in terms of yields, output and calendar/seasonality of production. This kind of information is important for investors to make informed decisions about raw materials procurement, location and capacity of new milling plants.

4.3 INTERNATIONAL DONORS AND DEVELOPMENT PARTNERS

With detailed socio-economic and biophysical information of major crops and livestock production from the 23 LGAs donors and development partners with the State, can now use this information to focus their interventions in agricultural value chains development.

4.4 MANUFACTURERS AND DEALERS OF AGRO-INPUTS

The data on number of farmers, total area cultivated and types of seeds used will guide inputs dealers to have an estimate of the potential quantity of inputs that may be required by farmers in the state. Such information can also assist the manufacturers and dealers of the inputs to plan their inventory, production and distribution planning. Vendors of agricultural machines and tools can also know the geographical location of potential customers.

4.5 CONCLUSION

Increasing agricultural domestic production and reducing food import dependence is now a major goal of the Nigerian government, local and international development partners. The current estimated gross outputs of major crops such as; Rice, Maize and Soybeans from the 2016 cropping seasons were the highest achieved in the history of Kaduna State. This is not unrelated to the various policies and interventions implemented by the State and Federal governments,

local and international development partners towards improving the competitiveness of the agriculture value chains. The current scenario is indicating that Kaduna State has started its journey towards food self-sufficiency and commercialization

4.7 RECOMMENDATION

In order to consolidate these gains and achieve fully the objectives of food sufficiency and commercialization in the state, the government and other stakeholders have to consider the following;

- Promote the adoption of productivity enhancing technologies such as improved seeds, mechanization and improved access to credit, extension and technical support among the farmers in the State.

- Promotion of improved post-harvest and processing activities and marketing. These will however require substantial increase in public and private investments in areas of research and development, irrigation infrastructures, rural roads and modern processing technologies.

- There is also the need to support the KDBS to continue conducting the KASS on annual basis in order to gain and document this type of data and information for effective and evidence based decision-making and policy.

- Conducting the KASS on annual basis will also help to institutionalize the methodology and processes among the key government institutions involved (KDBS, ADP and LGs) and makes the data collection cost effective in the end.